This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

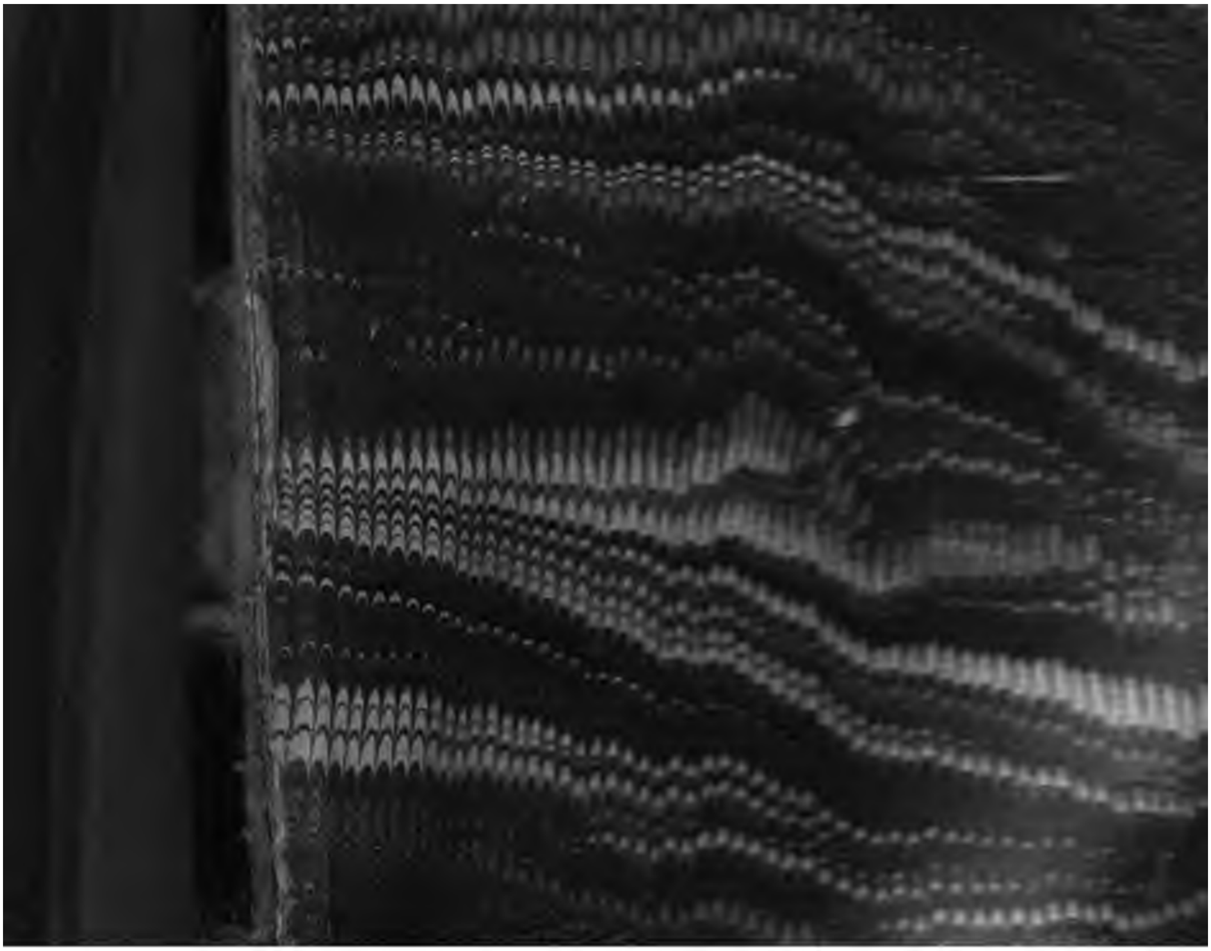
LANE MEDICAL LIBRARY STANFORD
N201 .S61 1872 STOR
Clinical lectures on the diseases of wom
24503350475

LANE

MEDICAL LIBRARY

SEAL OF THE LELAND STANFORD JUNIOR UNIVERSITY
SEMPER VIRENS
1885

LEVI COOPER LANE FUND



[illegible], M. L.

R. H. Plummer 400.

H. Plummer, M.D.

THE WORKS

OF

SIR JAMES Y. SIMPSON, BART.

VOLUME III.

CLINICAL LECTURES

ON THE

DISEASES OF WOMEN.

BY

SIR JAMES Y. SIMPSON, BART.,
M. D., D. C. L.,
LATE PROFESSOR OF MIDWIFERY IN THE UNIVERSITY OF EDINBURGH.

EDITED BY

ALEXANDER R. SIMPSON, M. D.,
PROFESSOR OF MEDICINE AND MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN IN THE UNIVERSITY OF EDINBURGH.

NEW YORK:
D. APPLETON AND COMPANY,
549 & 551 BROADWAY.
1872.

561
1872

PREFACE.

THE greater number of the Lectures contained in this volume appeared in the *Medical Times and Gazette* during the years 1859-1861. They were printed from notes which I took of the lectures at the time of their delivery, and afterwards extended; and the proof-sheets were corrected by the Author.

It was his intention to complete the series, and publish them in a separate volume; and more than once he began to carry his intention into practice. On the last occasion, in 1869, when he enjoyed the able assistance of Dr. Lauchlan Aitken, upwards of thirteen sheets were printed off, and Lecture VI. was then introduced.

The first of the Lectures on Fibroid Tumours, and part of the second, had been written by Dr. J. Watt Black for the *Medical Times and Gazette* in 1866, and corrected in proof by Sir James himself, but they were never published. I have drawn up the remainder of the nine concluding Lectures from my own notes and those of Dr. Black, with the aid of the Author's Lecture-notes. Thus ten out of the fifty Lectures are now published for the first time.

I have prefaced the whole with the Lecture on the Diagnosis of the Diseases of Women, extracted from the first volume of Sir James Simpson's *Obstetric Memoirs and Contributions*, edited by Drs. Priestley and Storer.

As the Lectures are Clinical, and not arranged in any systematic order, I have introduced a copious Table of Contents, and a full Index, to facilitate reference.

ALEX. R. SIMPSON.

52 Queen Street, Edinburgh,
December 1871.

CONTENTS.

LECTURE I.

DIAGNOSIS OF THE DISEASES OF WOMEN.

Preliminary Remarks—Symptoms of Uterine Diseases either 1. Dynamic or 2. Physical.—The Rational or Dynamic Symptoms of Uterine Diseases. I. Derangements in the Functions and Vital Condition of the Uterus itself. II. Dynamic Symptoms in other neighbouring Pelvic Organs. III. Sympathetic Pains in different and distant Parts of the Body. IV. Derangements of Functions in distant Organs. V. States of General Constitutional Derangement.

What is the Diagnostic Value of these various forms of Dynamic or Rational Symptoms, in the detection and discrimination of Uterine Diseases?

What are the means of Physical Diagnosis, that we may use in Diseases of the Uterus, Ovaries, etc.? . . . . . . Pages 1—29

LECTURE II.

ON VESICO-VAGINAL FISTULA.

1. Cause; 2. Situation; 3. Extent; 4. Shape; 5. Diagnosis; 6. Prognosis; 7. Treatment of Vesico-vaginal Fistula . . . . 30—39

LECTURE III.

ON VESICO-VAGINAL FISTULA—*Continued.*

The Operation.—1. Paring the Edge of the Fistula; 2. The Introduction of the Stitches; 3. Coaptation of the Edges of the Fistula or Wound; 4. The Securing of the Threads, and the Consolidation of the Parts; 5. The After-treatment . . . . 40—58

LECTURE IV.

ON PELVIC CELLULITIS.

History and Nomenclature of the Disease.

Pathological Anatomy—1. The Seat of the Inflammation; 2. The Products and Termination of the Inflammation.—1st, Effusion of Serum; 2d, Formation of Pus; 3d, Coagulable Lymph; 4th, Sloughing of the Cellular Tissue.

SYMPTOMS AND DIAGNOSIS of the Disease. A. Before Suppuration has begun. —1. Inflammatory Fever; 2. Pains in the Pelvis; 3. Tumour in the Pelvis. B. After Suppuration has been established.—4. Hectic Fever; 5. The Feeling of Fluctuation; 6. The introduction of an Exploring-Needle. PROGNOSIS . . . . Pages 59—78

LECTURE V.

ON THE TREATMENT OF PELVIC CELLULITIS.

A. BEFORE SUPPURATION HAS BEGUN.—1st, The use of Antiphlogistics; 2d, The use of Mercury; 3d, Anodynes; 4th, The use of Alteratives and Depurants: 5th, External Fomentations, Counter-irritation, etc.; 6th, The regulation of the Bowels.

B. AFTER SUPPURATION IS ESTABLISHED.—7th, The Administration of Febrifuges and Refrigerants; 8th, The Evacuation of the Abscess, *a*. Time, *b*. Place. *c*. Means; 9th, Counter-openings; 10th, The injection of the Tincture of Iodine; 11th, The introduction of a Piece of Wire; 12th, Use of Tonics and Deobstruents . . . . 79—93

LECTURE VI.

PELVIC PERITONITIS.

Pathological Anatomy—Symptomatology—Physical Signs—Progress and Termination—Etiology—Diagnosis—Distinction of Pelvic Cellulitis from Pelvic Hematocele—Prognosis—Treatment . . . 94—120

LECTURE VII.

PERI-UTERINE OR PELVIC HEMATOCELE OR HEMATOMA.

HISTORY AND NOMENCLATURE.
PATHOLOGICAL ANATOMY AND PATHOLOGY.
SYMPTOMS—PROGNOSIS.
TREATMENT.—1. The employment of Hemostatic Measures; 2. The use of Antiphlogistics; 3. The Administration of Discutient Remedies; 4. The Opening of the Tumour.
HEMATOMA OR THROMBUS OF THE VULVA.
VARIX OF THE PUDENDAL VEINS . . . 121—139

LECTURE VIII.

ON CANCER OF THE UTERUS.

PATHOLOGY AND SEMEIOLOGY OF THE DISEASE.—I. Its Anatomical Seat and Course; Cancer in the Cervix Uteri; In the Body and Fundus of the Uterus.

II. Pathological Forms of Uterine Cancer.
III. The SYMPTOMS of Carcinoma Uteri. Local Symptoms of Carcinoma Uteri.—1. Pain ; 2. Menorrhagia ; 3. Serous or Sanious Leucorrhœa. Constitutional Symptoms and Effects. IV. DIAGNOSIS of Carcinoma Uteri. V. Ages o Patients affected with Carcinoma Uteri.—VI. PROGNOSIS in cases of Carcinoma Uteri . . . . Pages 140—154

LECTURE IX.

ON CANCER OF THE UTERUS—*Continued.*

TREATMENT OF THE DISEASE.—PALLIATIVE—1. Measures calculated to palliate the Attendant Pains ; 2. Measures calculated to arrest the attendant Hemorrhages ; 3. Measures calculated to counteract the offensiveness, etc., of the attendant Leucorrhœal Discharges . . . 155—167

LECTURE X.

ON CANCER OF THE UTERUS—*Continued.*

ITS SURGICAL TREATMENT.—Extirpation of the entire Uterus. Excision of the Cancerous Cervix Uteri. Mode of performing Amputation of the Cervix Uteri ; 1. By Cutting Instruments ; 2. By Écraseur ; 3. By Galvano-caustic Wire. Dangers attendant upon Amputation of the Cervix Uteri ; 1. Hemorrhage ; 2. Collapse ; 3. Wounding of Peritoneum ; 4. Surgical Fever and Inflammation. Advantages or Results to be obtained by Amputation of the Cervix Uteri . . . . . . 168—182

LECTURE XI.

ON CARCINOMA OF THE UTERUS AND MAMMA.

TREATMENT BY CAUSTICS.—Should Cancers of Mamma be removed by the Knife? Results of Excisions by the Knife. Is the Removal of Cancers by Caustics preferable? Is the Extirpation by Caustics more complete or lasting than by the Knife? To what Cancers are Caustics applicable? The principle upon which they are used. Varieties of Caustics. Application of Caustics to the Cancerous Cervix Uteri . . . . . . 183—201

LECTURE XII.

ON COCCYGODYNIA, AND THE DISEASES AND DEFORMITIES OF THE COCCYX.

THE SYMPTOMS OF THE DISEASE. — NOMENCLATURE. — The PATHOLOGICAL NATURE.—The TREATMENT.
INJURIES of Coccyx in connection with PARTURITION—SURGICAL INJURIES—

MALFORMATIONS of the Coccyx. Deficient Development of the Coccyx. TUMOURS of the Coccyx—Double Monstrosity by Inclusion.
TREATMENT of these Coccygeal Tumours . . . Pages 202—224

LECTURE XIII.

ON DYSMENORRHŒA.

SEAT OF THE PAIN.—I. Ovarian Dysmenorrhœa; II. Uterine Dysmenorrhœa; 1. Neuralgic; 2. Congestive; 3. Inflammatory; 4. Gouty or Rheumatic; 5. Organic; 6. Membranous; 7. Obstructive.
DIAGNOSIS of the Disease—PROGNOSIS.
TREATMENT of the Disease; 1. Of the Paroxysm . . . 225—238

LECTURE XIV.

TREATMENT OF DYSMENORRHŒA.

I. PALLIATIVE TREATMENT.
II. PREVENTIVE TREATMENT.—1. Ovarian; 2. Neuralgic; 3. Congestive; 4. Gouty and Rheumatic; 5. Organic; 6. Membranous; 7. Obstructive 239—255

LECTURE XV.

ON CLOSURES AND CONTRACTIONS OF THE VAGINA, ETC.

I. CAUSES OF OCCLUSION AND STRICTURE OF THE VAGINA.—1. Result of difficult Parturition; 2. Result of Inflammation, independently of Pregnancy; 3. Malformation.
II. THE SYMPTOMS AND DIAGNOSIS.
III. TREATMENT of Closures causing Obstructive Amenorrhœa—of Morbid Contractions of the Vagina from Cicatrices—of Congenital Contractions of the Os Vaginæ.
FISSURES OF THE ORIFICE of the Vagina; Symptoms and Diagnosis; Causes; Treatment . . . . 256—272

LECTURE XVI.

ON CARUNCLES OF THE URETHRA—NEUROMATA OF THE VULVA—HYPERÆSTHESIA AND NEURALGIA OF THE VULVA.

URETHRAL CARUNCLES.—Semeiology—Pathological Anatomy—Diagnosis—Treatment. Methods to be followed for the Removal of Urethral Caruncles—1. Application of Ligature; 2. Excision with a Knife or Scissors; 3. Application of the Actual Cautery. Palliative Treatment.
NEUROMATA of the Vulva—HYPERÆSTHESIA and NEURALGIA of the Vulva 273—285

LECTURE XVII.

ON ABSCESS OF THE LABIA PUDENDI, AND THE VARIOUS FORMS OF VULVITIS.

ABSCESS OF THE LABIA PUDENDI.—1. Pathological Anatomy; 2. Etiology; 3. Symptoms and Diagnosis; 4. Treatment. Treatment of Fistula in Vulva. PAPILLARY VULVITIS. PURULENT VULVITIS, or Leucorrhœa in Infants—Symptoms and Course; Treatment. GANGRENOUS VULVITIS or Noma. PRURIGENOUS VULVITIS . . . Pages 286—295

LECTURE XVIII.

ON SURGICAL FEVER.

CAUSES OF DEATH AFTER SURGICAL OPERATIONS AND INJURIES.—Table of the Mortality of Amputation of the Thigh. Table of the Mortality of Ligature of Arteries and Herniotomy. What is the Nature of the Malady which accompanies or gives rise to these Secondary Lesions? 1. Fever from Local Inflammation; 2. Fever with Inflammation extending to neighbouring parts; 3. Fevers with disseminated Centres of Inflammation . 296—307

LECTURE XIX.

ON SURGICAL FEVER—ITS ETIOLOGY AND SEMEIOLOGY.

THE ETIOLOGY OF THE DISEASE.—1. Predisposing Cause; 2. Exciting Cause—1st. Septic Matters absorbed from the Wound; 2d. Pus absorbed into the Blood-Vessels. Cause of the Secondary Deposits and Abscesses—1. Mechanical Metastasis: Embolism; 2. Secretory Metastasis.

SEMEIOLOGY.—1. Rigors; 2. Acceleration of the Pulse: Respiration; 3. State of the Tongue, Skin, etc. Signs of the Secondary Lesions . 308—318

LECTURE XX.

SURGICAL FEVER—ITS TREATMENT.

I. THE PREVENTIVE OR PROPHYLACTIC TREATMENT.—1. Date of Operating; 2. Preparation by previous restraint; 3. Antecedent Dieting; 4. Prophylactic Medications; 5. Purer air of Country, of Home, etc.; 6. Particular seasons, etc., preferable; 7. Protection from Contagious Inoculation.

II. THE CURATIVE TREATMENT of Surgical Fever. A. Local Curative Measures—1. Seat of Primary Wound; 2. Seat of the Secondary Inflammations. B. Constitutional Curative Measures: First Indication—To obtund and reduce the irritability of the Nervous System. Second Indication—To subdue the excitement of the Heart and Vascular System. Third Indication—To Depurate the Blood. Fourth Indication—To sustain the Vital Powers of the Patient by stimulants, etc. . . . . . . 319—338

LECTURE XXI.

ON PHLEGMASIA DOLENS.

Symptoms and Diagnosis.

Pathological Anatomy and Pathology. — 1. Retention of the Lochia; 2. Metastasis of Milk; 3. Rupture of Lymphatic Vessels; 4. Obstruction of Lymphatic Vessels and Glands; 5. Inflammation of Lymphatic Vessels and Glands; 6. Phlebitis; 7. Inflammation of all the Tissues. Origin of Phlegmasia Dolens in Blood-Disease . . . Pages 339—351

LECTURE XXII.

PHLEGMASIA DOLENS—*Continued.*

The Treatment of Phlegmasia Dolens.—A. General Indications: 1. Depuration of the Blood; 2. The use of Antiphlogistics and Febrifuges; 3. The administration of Tonics and Stimulants.

B. Local Indications—1. The use of Local Antiphlogistics; 2. To promote Absorption; 3. To endeavour to restore the Power of the Limb 352—362

LECTURE XXIII.

ON SPURIOUS PREGNANCY, OR PSEUDOCYESIS.

Constitutional or Local. — Frequency of the Disease. Times of its occurrence. May the Disease occur in the Unmarried? Mistakes from it among the Married. Repetition of Special Idiosyncrasies. Physical Diagnosis—1. Auscultation; 2. Percussion of the Abdomen; 3. Tactile Examination; 4. Chloroform . . . . 363—378

LECTURE XXIV.

ON SPURIOUS PREGNANCY—ITS PROGNOSIS, PATHOLOGY, AND TREATMENT.

The Prognosis of the Disease.

Pathology of the Disease.

Treatment of the Disease.—1. Raise or Restore the Standard of Health; 2. Counteract or Cure any existing Uterine or Ovarian Disease; 3. Administer Uterine and Ovarian Sedatives; 4. Reduce and relieve the Individual Symptoms: *a.* Treatment of the Nausea and Vomiting: *b.* Treatment of the Tympanitis . . . . 379—393

LECTURE XXV.

ON OVARIAN DROPSY.

The Pathology of Ovarian Dropsy. — 1. Unilocular; 2. Multilocular; 3. Colloid Tumours; 4. Carcinomatous Tumours; 5. Stearoid Tumours. Nature of the Contained Fluid.

History and Prognosis of the Disease—1. Spontaneous Cure of the Disease; 2. Death from Rupture of an Inflamed Cyst; 5. Death from Exhaustion and the Effects of Pressure; 4. Death from, and despite of, Paracentesis Pages 394—408

LECTURE XXVI.

ON OVARIAN DROPSY—ITS SYMPTOMS AND DIAGNOSIS.

The Etiology of the Disease.

The Symptomatology of the Disease.—1. Functional Derangements of the Generative System; 2. Constitutional Symptoms; 3. Local Mechanica Symptoms.

Physical Diagnosis. I. When the Tumour is still in the Pelvis. II. When the Tumour has entered the Abdomen.—1. The position; 2. Form; 3. Consistence. Differential Diagnosis of the Disease—from 1. Retroverted Unimpregnated Uterus; 2. The Gravid Uterus; 3. Fibroid Tumours: *a*. Difference in Consistence; *b*. Difference in Outline; *c*. Difference in Sounds heard in Auscultation; *d*. Difference in relation to connection with the Uterus; *e*. Difference in relation to Position of the Uterus; *f*. Difference in Size of the Uterus; 4. Ascites; 5. Tympanitis of Spurious Pregnancy; 6. Hydatids; 7. Fæcal collections in the Intestines . . . 409—428

LECTURE XXVII.

ON OVARIAN DROPSY—ITS DIAGNOSIS AND TREATMENT.

Differential Diagnosis—(*Continued*).—From 8. Dropsy of the Cavity of the Uterus, and of the Amnion; 9. Enlarged and Dependent Liver; 10. Hypertrophied Spleen; 11. Loose or Mobile Kidney; 12. Distended Bladder.

The Treatment of Ovarian Dropsy: A. Medical Treatment—1. Keep up the Standard of Health; 2. Alleviate Symptoms due to the Pressure and Presence of the Tumour; 3. Subdue Local Inflammation when it occurs 429—442

LECTURE XXVIII.

ON OVARIAN DROPSY—ITS SURGICAL TREATMENT.

B. Surgical Treatment.—I. The Application of Pressure. II. Paracentesis—1. Cases requiring the Operation; 2. The place of Puncture; 3. Results of the Operation. Is Tapping a Dangerous operation? 443—450

LECTURE XXIX.

ON OVARIAN DROPSY—ITS SURGICAL TREATMENT—*Continued.*

4. The Position, etc. of the Patient during the operation of Paracentesis; 5. Instruments required for the Operation. III. Forming a Communication between the Interior of the Cyst and the Cavity of the Peritoneum. IV. Establishing a Fistulous Communication between the Interior of the Cyst and a Mucous or Cutaneous Surface . . . Pages 451—462

LECTURE XXX.

ON OVARIAN DROPSY—INJECTION OF IODINE.

V. Injection of Iodine and other Stimulating Substances into the Interior of the Evacuated Cyst—1. The results of the Operation; 2. Cases requiring the operation; 3. Mode of Operating, and Apparatus required: Quality and Quantity of Iodine required; 4. The Mode in which Irritant Injections effect a Cure. VI. The Application of Electricity or Galvanism . 463—482

LECTURE XXXI.

ON OVARIOTOMY.

History of the Operation.

Objections.—1. It is dangerous; 2. Is as fatal now as it was at first; 3. The Disease is liable to return after the Operation; 4. The Condition of the Patient is not improved; 5. Is unnecessary; 6. The Diagnosis of the Disease is uncertain, and the Condition of the Tumour cannot be made out 483—496

LECTURE XXXII

ON OVARIOTOMY—*Continued.*

Cases requiring Operation.

The Mode of performing the Operation.—1. Preliminary Measures; 2. Instruments required; 3. Position of Patient; 4. The Operation, *a.* The Incision; *b.* Evacuation of Cyst or Cysts; *c.* Separation of Adhesions; *d.* Securing the Pedicle; *e.* Closing the Wound; 5. The after Treatment. Results of the Operation . . . . 497—509

LECTURE XXXIII.

ON CRANIOCLASM.

Modes of Delivery in Obstructed Labour.—1. The Forceps; 2. Turning; 3. Craniotomy; 4. Cephalotripsy; 5. Cæsarean and Sigaultian Operations; 6. The Induction of Premature Labour.

Conditions justifying the operative Diminution of the Fœtal Head.—1. When the Child is Dead; 2. Where the Long Forceps have been tried and have failed; 3. Where Turning is impossible; 4. Where there has been no Opportunity of inducing Premature Labour; 1st, Because of Objections and Obstructions put by the Patients to the Operation; 2d, Because it is the Patient's first Confinement.

Methods of reducing Fœtal Head.—Cephalotripsy; Craniotomy; Cranioclasm. Mode of Operation; 1. Perforation of the Head; 2. Comminution of the Bones of the Skull; 3. Extraction of the Child. Comparison of Cranioclasm with Cephalotripsy and Craniotomy . . . Pages 510—538

LECTURE XXXIV.

ON DROPSY AND OTHER DISEASES OF THE FALLOPIAN TUBES.

I. Displacement. II. Hypertrophy. III. Fibroid Tumours. IV. Carcinoma. V. Tuberculosis. VI. Inflammation. VII. Hemorrhagic Effusions.

VIII. Dropsy.—The Etiology of the Disease. Pathological Anatomy. Semeiology. Diagnosis; Prognosis; Treatment. . . 539—554

LECTURE XXXV.

ON PUERPERAL MANIA.

Etiology and Pathology.—1. Hereditary Predisposition; 2. Anæmia and Exhaustion; 3. The peculiar State of the Sexual System which occurs after Delivery; 4. Toxæmia; 5. Albuminuria; 6. First Delivery; 7. Mental Emotions; 8. A Complication of Inflammatory Diseases in the Puerperal State.

Semeiology . . . . 555—569

LECTURE XXXVI.

ON PUERPERAL MANIA—*Continued.* PUERPERAL HYPOCHONDRIASIS.

Prognosis.

Treatment.—A. Treatment at the Onset of the Disease—1. Bleeding; 2. Vascular Sedatives; 3. Nervous Sedatives; 4. Specifics; 5. Depurants. B. Treatment after the Disease has become established—1. Nutrition; 2. Attendance; 3. Confinement; 4. Restoration of the Menstrual Functions.

Puerperal Hypochondriasis.—Use of Tincture of Actea. . 570—584

LECTURE XXXVII.

ON SUB-INVOLUTION OF THE UTERUS AFTER DELIVERY.

The Pathological Nature of the Disease.

ETIOLOGY.—1. Rising too soon after Confinement; 2. Repeated Miscarriages: 3. Metritis.
SEMEIOLOGY.—PHYSICAL DIAGNOSIS.—PROGNOSIS.
TREATMENT of the Disease . . . . Pages 585—596

LECTURE XXXVIII.

ON SUPER-INVOLUTION OF THE UTERUS AND AMENORRHŒA.

SYMPTOMS AND DIAGNOSIS OF SUPER-INVOLUTION.
AMENORRHŒA.—VARIOUS FORMS.—1. From Congenital Malformation of the Generative Organs; 2. From retarded Menstruation; 3. From premature Cessation of Menses; 4. From Constitutional Affections; 5. From Diseases of the Organs of Generation themselves—*a.* Of the Ovaries; *b.* Of the Uterus; *c.* Of the Vagina . . . . . . 597—611

LECTURE XXXIX.

ON AMENORRHŒA—*Continued.*

SEMEIOLOGY OF THE DISEASE.—I. The Symptoms dependent on the Condition of the Uterine System; 1. Diminution or Suppression of the Menstrual Secretion; 2. Loss of Reproductive Power; 3. Changes in the Mucous Secretion of the Uterus; 4. Physical Change in the Uterus. II. Constitutional Symptoms—1. Plethora; 2. Chlorosis or Anæmia; 3. Ulcerations and Vicarious Hemorrhages; 4. Acne and Cutaneous Eruptions; 5. Affections of the Nervous System; 6. Disorder of the Circulation; 7. Disorder of the Intestinal Canal; 8. Disturbances of Respiration . . . 612—619

LECTURE XL.

ON AMENORRHŒA—*Continued.*

TREATMENT.—A. Symptomatic—1. Relief of the attendant Asthma; 2. Cure of the Neuralgia; 3. Removal of the Eruptions. B. Systematic or Constitutional Treatment. C. Specific Treatment—1. Emmenagogues; 2. External Applications; 3. Injections into the Rectum or Vagina . . 620—631

LECTURE XLI.

ON AMENORRHŒA—*Continued.*

LOCAL TREATMENT.—1. Emmenagogues applied to the Vagina; 2. Emmenagogues applied to the Uterus—1st, Nitrate of Silver to the Cervix Uteri; 2d, Direct Stimulants applied to the Uterus or Uterine Cavity itself; 3d, Dry Cupping the Interior of the Uterus; 4th, Intra-Uterine Pessaries; 5th, Electricity and Galvanism. Amenorrhœa connected with an undersized Uterus. 632—643

LECTURE XLII.

ON RUPTURE OF THE PERINEUM.

ETIOLOGY.—I. The predisposing Causes—1. Preternatural Smallness or Rigidity of the Vaginal Orifice; 2. Morbid Changes in the Part: Rigidity of Youth or Age; 3. Too rapid Labour. II. The Proximate Causes—1. Descent of the Fœtal Head; 2. Simultaneous Emergence of both Shoulders; 3. Operative Interference. SYMPTOMS AND DIAGNOSIS.

TREATMENT.—I. Prophylactic Measures—*a*. Support the Perineum; *b*. Direct the Tear by Lateral Incisions. II. Treatment of Recent Ruptures. III. Treatment after Cicatrisation without Union has taken place—1. Make a raw Surface; 2. Bring the Edges together; 3. The After-Treatment. Pages 644—658

LECTURE XLIII.

ON FIBROID TUMOURS OF THE UTERUS.

ANATOMICAL, PATHOLOGICAL, AND PHYSICAL CHARACTERS.—1. Appearance of Section; 2. Minute Structure; 3. True Pathological Nature; 4. Vascularity; 5. Consistency of the Tumours; 6. Their Form and Number; 7. Size and Weight; 8. Capsules; 9. Site. Various Anatomical Seats—1. Sub-peritoneal; 2. Intra-mural; 3. Submucous, or Intra-uterine . 659—669

LECTURE XLIV.

ON FIBROID TUMOURS OF THE UTERUS—*Continued*.

TRANSFORMATIONS.—1. Carcinomatous Degeneration; 2. Fatty Degeneration; 3. Inflammatory Changes; 4. Spontaneous Enucleation; 5. Cartilaginous and Calcareous Degeneration. ETIOLOGY.

SYMPTOMATOLOGY.—1. Enlargement of the Abdomen; 2. Disturbance of the Functions of the Uterus—1st, Menstruation, 2d, The Intermenstrual Secretion, 3d, The Reproductive Function: 3. Derangement of Neighbouring Organs; 4. Local and Sympathetic Pains; 5. Functional Symptoms in Distant Organs.

PHYSICAL DIAGNOSIS.—A. Pelvic Fibroid Tumours—1. Digital Exploration; 2. The Use of the Sound. B. Abdominal Fibroid Tumours—1. Abdominal Palpation; 2. Vaginal Examination; 3. The Introduction of the Uterine Sound; 4. Auscultation . . . . 670—682

LECTURE XLV.

ON FIBROID TUMOURS OF THE UTERUS—THEIR DIFFERENTIAL DIAGNOSIS, PROGNOSIS, AND TREATMENT.

DIFFERENTIAL DIAGNOSIS—1. From the Gravid Uterus; 2. From Ovarian Tumours; 3. From Flexions of the Uterus; 4. From Inflammatory Deposits in the Pelvis; 5. From Simple Hypertrophy of the Uterus; 6. From Omental and other Abdominal Tumours.

PROGNOSIS. TREATMENT.—A. MEDICAL TREATMENT.—1. Use of Discutient Remedies; 2. Relief of Symptoms; 3. Attention to the General Health. B. SURGICAL TREATMENT.—*a.* Remedial Measures.—1. Use of Galvanism to bring about Calcification; 2. Gastrotomy and Excision of Tumour; 3. Enucleation and Removal through the Vagina; 4. Removal of the Portions of the Tumour.—*b.* Palliative Treatment.—1. Relief of Pressure; 2. Arrest of Hemorrhage . . . . Pages 683—703

LECTURE XLVI.

ON POLYPI OF THE UTERUS.

SIZE AND SHAPE. PATHOLOGICAL VARIETIES OF POLYPI.—1. Fibroid; 2. Mucous; 3. Erectile; 4. Placental or Hematic; 5. Malignant. ANATOMICAL SEAT.—1. Intra-uterine; 2. Cervical; 3. Vaginal.

ETIOLOGY. SYMPTOMS.—1. Constitutional; 2. Local. PHYSICAL DIAGNOSIS. A. OF VAGINAL POLYPI.—1. Digital Exploration; 2. Use of the Speculum; 3. Use of the Sound. B. OF INTRA-UTERINE POLYPI.—4. Use of Tents.

PROGNOSIS . . . . 704—721

LECTURE XLVII.

ON THE TREATMENT OF POLYPI—AND ON LEUCORRHŒA.

TREATMENT OF POLYPI—1. Compression with Sponge-Tent; 2. Strangulation by the Ligature; 3. Excision with Polyptome, etc.; 4. Bloodless Amputation; 5. Torsion; 6. Scraping; 7. Cauterisation.

LEUCORRHŒA.

PATHOLOGICAL NATURE AND ANATOMICAL SEAT.—1. From Vulva; 2. From Vagina; 3. From Uterus.

SYMPTOMS AND DIAGNOSIS.—1. Constitutional Symptoms; 2. Local Symptoms—Differential Diagnosis.

TREATMENT.—A. When Acute. B. When Chronic—1. Restoration of General Health; 2. Use of specifics; 3. Local Measures . . 722—735

LECTURE XLVIII.

ON CHRONIC METRITIS.

A. OF THE FUNDUS AND BODY OF THE UTERUS.—1. Perimetritis; 1. Endometritis; 3. Parenchymatous Metritis.

SYMPTOMS.—1. Constitutional; 2. Functional Disturbance of the Uterus; 3. Disturbance of neighbouring Organs.—PHYSICAL DIAGNOSIS.

TREATMENT.—*a.* Medical; *b.* Surgical.—1. Introduction of Solids into the Cavity of the Uterus; 2. Astringent Injections; 3. Sponge Tent.

B. OF CERVIX UTERI.—Types of Cervicitis.—1. Catarrhal; 2. Eruptive; 3. Ulcerative; 4. Hypertrophic.

SYMPTOMS.—1. Painful or Profuse Menstruation; 2. Leucorrhœal Discharges; 3. Local and Reflex Pains.—DIAGNOSIS.

TREATMENT.—I. Constitutional Measures. II. Local.—1. Local Blood-letting; 2. Counter-irritation; 3. Local Deobstruents; 4. Caustics and Astringents; 5. Escharotics; 6. Sedatives . . . . Pages 736—750

LECTURE XLIX.

ON PROLAPSUS UTERI.

DEGREES OF DESCENT.

Attendant PATHOLOGICAL Conditions.—1. Elongation of the Cervix Uteri; 2. Hypertrophy and Congestion of the whole Organ; 3. Displacement of the neighbouring Organs; 4. Changes in the Exposed Tumour.

ETIOLOGY.—1. Increased Weight of the Uterus; 2. Relaxation of the Uterine Supports; 3. Upright Position.

SYMPTOMS AND DIAGNOSIS.—I. Functional Disturbances. II. Physical Condition.—Differential Diagnosis: 1. Cystocele; 2. Rectocele; 3. Inversion of the Uterus; 4. Polypus.—PROGNOSIS.

TREATMENT.—A. Palliative Measures: 1. Rest and Horizontal Position; 2. Antiphlogistics and Deobstruents; 3. Local Astringents and Tonics; 4. Mechanical Supports.—B. Operative Measures: 1. Producing Adhesion between the two Labia Pudendi; 2. Producing Adhesion between Surfaces of the Vagina; 3. Producing Cicatricial Contractions in the Vagina; 4. Amputation of the Cervix Uteri; 5. Extirpation of the Uterus 751—763

LECTURE L.

ON RETROVERSION OF THE UTERUS.

PATHOLOGY.—ETIOLOGY.—FREQUENCY.

SYMPTOMATOLOGY.—I. General Constitutional Disturbances. II. Local Functional Disorders: 1. Disturbed Menstruation; 2. Impaired Power of Reproduction; 3. Interference with Bladder, Rectum, and power of Progression. PHYSICAL DIAGNOSIS.—1. Tactile Examination; 2. Combined External and Internal Examination; 3. Use of Sound. DIFFERENTIAL DIAGNOSIS.—1. From Pregnancy; 2. Fibroid Tumour; 3. Ovarian Tumours; 4. Inflammatory and Hemorrhagic Tumours; 5. Extra-Uterine Pregnancy; 6. Carcinoma; 7. Stricture of the Rectum.

TREATMENT.—1. Postural Treatment; 2. Removal of co-existing Morbid States; 3. Restoration of the Uterus to its Normal Situation; 4. Retention of the Replaced Uterus by—1st. Vaginal Pessaries; 2d. Intra-Uterine Pessaries; 5. Use of Sponge Tent . . . . . . 764—780

INDEX . . . . 781—789

LIST OF ILLUSTRATIONS.

FIG. PAGE

1. Dr. Marion Sims' Speculum 41
2. Tenaculum used in operating on Vesico-Vaginal Fistula . . 42
3. Straight Knife for paring Edges of Fistulæ 42
4. Bent Knife for paring Edges of Fistulæ 42
5. Lateral View of ditto 42
6. Tubular Needle 44
7. Fork or Pulley 44
8. Blunt Hook 44
9. Fistula in Anterior Wall of Vagina 46
10. Bozeman's Suture-adjuster 47
11. Adjustment of Sutures 48
12. Bozeman's "Button" 49
13. „ "Button-Suture" 49
14. Iron-Wire Splint 51
15. Dr. Coghill's Wire-Twister 51
16. „ „ Point of 51
17. Iron-Wire Splint adjusted 52
18. Manner of removing Sutures 54
    - I. Paring of the Edges 58
    - II. Introduction of Sutures 58
    - III. Manner of Securing Stitches 58
    - IV. Wound fully closed 58
    - V. The Operation completed and the Speculum still applied . 58
19. Diagram illustrative of Evacuation of Pelvic Abscess. . . . 88
20. Pelvic Peritonitis 98
21. Situation of Hematocele 124
22. Varicose Veins of Nymphæ 138
23. Carcinoma Uteri 144
24. „ in Interior of Uterus 145
25. Microscopical appearance of a Section of Cauliflower Excrescence : 147
26. Development of Cells in Carcinoma 149
27. Apparatus for application of Carbonic Acid to Uterus . . 157
28. Section of Perforated Cork in ditto 158
29. Apparatus for injecting Vapour of Chloroform . . . 159
30. Amputation of Cervix Uteri with Chain Écraseur . . . 171

FIG. PAGE
31. Amputation of Cervix Uteri with Wire Écraseur 173
32. Cervix Uteri excised for Cancroid Disease 177
33. ,, ,, seen from Surface of amputation 178
34. ,, ,, excised for Cauliflower Excrescence 179
35. Appearance presented by a Section of Tumour 180
36. Blood-vessel from a Cauliflower Excrescence 181
37. Mode of introducing Conical Arrows into Tumours . . . 197
38. Mode of introducing Flat Arrows into Tumours . . . 197
39. A Fusiform Arrow 197
40. Anatomical Relations of the Coccyx 207
41. Coccygeal Tumour 218
42. Coccygeal Tumour dissected 219
43. Coccygeal Tumour 221
44. Coccygeal Tumour 222
45. Ulcerating Coccygeal Tumour 223
46. Dysmenorrhœal Membrane 230
47. ,, ,, laid open 231
48. Inner Surface of Uterine Cast 233
49. Openings of Uterine Follicles 233
50-51. Intra-uterine Stem Pessaries 250
52. Point of the Staff used in the introduction of Intra-uterine Pessaries . 251
53. Virgin Os Uteri 252
54. Os Uteri of a Woman who has borne Children 252
55. Diagram of Hysterotomy 253
56. The Hysterotome or Metrotome 254
57. Urethral Caruncle 274
58. Vessels in a Urethral Caruncle 276
59. Scattered Caruncles in Urethral Orifice and Vulva . . . 280
60. Thrombi arising in one Vein and passing into another . . 313
61. Embolism of the Pulmonary Artery 313
62. Puriform Débris of Softened Thrombi 314
63. Obstruction and Inflammation of the Lower Part of the Aorta . 353
64. Section of Multilocular Ovarian Cyst 397
65. Section of Colloid Tumour of the Ovary 399
66. Lateral Position of Ovarian Tumours 415
67. Relation of Ovarian Tumour to the Descending Colon . . 424
68. Large Ovarian Tumour 430
69. Displacement of the Abdominal and Thoracic Viscera by Ovarian Tumour 431
70. Thompson's Trocar and Canula 454
71. ,, ,, ,, with Tube attached . . . 454
72. Trocar with Quadrangular Point for making Large Openings into Ovarian Cyst 459
73. The corresponding Canula 459
74. Scanzoni's Trocar and Canula for Vaginal Tapping . . . 464
75. Tube to be left in the Wound 464

FIG. PAGE

76. Bistoury for dilating the Opening made by the Trocar 464
77. Apparatus for injecting Fluids into the Interior of Ovarian Cyst 477
78. Patches of Lymphy Exudation in Interior of an Inflamed Ovarian Cyst 480
79. Mr. Spencer Wells' Ovariotomy-clamp 501
80. ,, ,, Operating-table 502
81. Application of Acupressure in Ovariotomy 504
82. Clamp applied to Pedicle 505
83. Acupressure-needle 506
84. Application of Acupressure in Ovariotomy 506
85. Kilian's Cephalotribe applied to the Fœtal Head 523
86. Base of Fœtal Skull reduced in the Operation of Craniotomy by Dr. Hamilton 525
87. The Perforator 526
88. The Cranioclast 526
89. Bones of the Skull of an Infant delivered by means of Cranioclasm 528
90. Base of Fœtal Skull reduced in the Operation of Craniotomy by Dr. Hamilton 529
91. Casts of the Crushed Head of an Infant delivered by means of Cranioclasm 530
92. Head of a Child delivered by means of Cranioclasm 533
93. Fibroid Tumour growing from Fallopian Tube 541
94. Dropsy of Fallopian Tube 545
95. Dropsy of both Fallopian Tubes 548
96. Another Illustration of Fallopian Tube Dropsy 551
97. Muscular-fibre Cells of the Uterus three weeks after delivery 587
98. Diagram of Sub-involution of the Uterus 593
99. Super-involution of the Uterus 599
100. Tube for Inhalation of Carbonic Acid Gas 621
101. Uterine Porte-Caustique 636
102. Instrument for Dry-cupping Interior of Uterus 636
103. Galvanic Intra-uterine Pessary 638
104. Central Rupture of the Perineum 645
105. Operation for Ruptured Perineum 654
106. Needle for introducing Transverse Stitches in the Canal of the Vagina 656
107. Completed Operation for Ruptured Perineum 657
108. Concentric Arrangement of Fibres of a Fibroid Tumour 661
109. Section of a large Fibroid Tumour 661
110. Minute Structure of a Uterine Fibrous Tumour 663
111. Uterus studded with Fibroid Tumours of various sizes 665
112. Projection of a Sub-peritoneal Fibrous Tumour 666
113. Intra-mural Fibrous Tumour 667
114. A Submucous Fibroid Tumour 668
115. Large Fibroid Tumour in process of Spontaneous Enucleation 672
116. Uterus studded with Fibroid Tumours in various situations 686
117. Section of Fibrous Polypus of the Uterus 705

FIG. PAGE
118. Intra-uterine Fibroid, which has become Pediculated . . 706
119. Group of Mucous Polypi growing in the Cervix Uteri . . 707
120. Small Pediculated Vesicular Polypi 708
121. Single Vesicular Polypus 708
122. Cauliflower Excrescence of Uterus 710
123. A Group of small Vesicular Polypi 710
124. Sketch of an Intra-uterine Polypus 711
125. Intra-uterine Polypus becoming Vaginal 712
126. Fibroid Polypus growing from the Interior of the Uterus by a long Neck 713
127. Pisiform Cystic Polypus projecting from the Os Uteri . . 716
128. Intra-uterine Polypus which gave rise to fatal Hemorrhage . 718
129. Sponge-Tents 719
130. Stilet used in the Introduction of Sponge-Tents . . . 720
131. The Polyptome 725
132. Carcinoma of Cervix Uteri 745
133. Inflammatory Hypertrophy of Cervix Uteri 745
134. Pessary for Prolapsus Uteri 759
135. Diagram of Displacements of the Unimpregnated Uterus . . 764
136. Posterior Dislocations of the Uterus 765
137. The Uterine Sound 771
138. Reduction of Retroversion by Uterine Sound . . . 772
139. Vaginal Pessary for Retroversion of the Uterus . . . 777
140. Intra-Uterine stem Pessary 778
141. Spring Pessary 779
142. Wire Pessary 779

LECTURE I.[1]

DIAGNOSIS OF THE DISEASES OF WOMEN.

I SHALL begin these Lectures with the consideration of the diagnosis of the diseases of the uterus and its appendages; and it is the more necessary in this respect, that, in studying these affections, you enter upon a field of practice in which the means of diagnosis are peculiar in various respects, in consequence of the anatomical and other peculiarities of the organs themselves, the diseases of which it is our object to investigate.

But you must permit me to make one or two preliminary remarks. And, first of all, I would earnestly beg you to hold this important fact in view—namely, that the diseases of the uterus do not essentially differ, in their principles of pathology and treatment, from the diseases of other individual organs of the body. The uterus is liable, for example, to be the seat of congestion, inflammation, carcinoma, etc., like any other organ of the body which you can name. It may be, and certainly is, more liable than other organs to some morbid states and actions; but what I wish to impress upon you is, that its diseases are generically the same as the diseases of other organs; and the general principles of their treatment are also the same, the special modifications of management which they require not being greater than the special modifications that must be attended to in applying any general principles of cure to any other individual organ, or set of organs. You treat and cure, for example, an attack of acute inflammation of the uterus, or a chronic inflammatory ulcer of the cervix of the organ, as you would treat an acute inflammation or a chronic inflammatory ulcer of the cornea, or of the pharynx, or larynx, or of any other part of the body—with this difference, that you can apply local antiphlogistic and other curative measures much more readily and easily to the uterus than to many other more internal organs. In fact you may, if you deem it necessary, apply lotions and dressings to an ulcer, for example, of the cervix uteri, with as much certainty and precision as if you applied them to an ulcer on the external surface of the body; you can thus almost reduce the organ, in relation to treatment, to the facilities presented in treatment by an external as compared with an internal organ.

---

[1] From *Edinburgh Monthly Journal of Medical Science*, February, 1851, p. 155. Reprinted in Simpson's *Obstetrical Works*, edited by Priestley and Storer, vol. i., p. 1.

Modern pathology has made great advances in the management of uterine diseases. These advances, however, have not, let me repeat, consisted so much in finding out that the uterus is the seat of any new, or any peculiar affections, as by finding out means and methods by which we can detect and diagnosticate the affections that are actually present in it. Here, as elsewhere, after being enabled to discover what its diseases really are, the chief difficulty of the physician is removed; for, as I have stated to you, the same principles of treatment apply to the treatment of specific morbid actions in the uterus as apply to the treatment of the same specific morbid actions in other organs. Indeed, if you will attempt to analyse what the great progress in the medicine of modern times has actually consisted of, you will, I believe, find that it has consisted, not so much in the detection of any new principles of therapeutic treatment, as in the detection of appropriate means for enabling the practitioner to detect and discover in different individual organs, what the actual diseased actions are in those organs for which his aid may be required. The treatment, for instance, of inflammation, ulceration, and most other morbid states, was perfectly well known and established hundreds of years ago; but, to take our example from the uterus itself, it was not till of late years that we had certain means and measures of knowing when inflammation and when ulceration, etc. etc., were present in this organ.

The study and practice of medicine have confessedly made, within the last fifty years, enormous advances; but these advances have been advances in pathology and diagnosis, much more than advances in therapeutics. And yet, what we still wish and desiderate in actual practice are still greater advances in our diagnostic means; or, to state the same circumstance in other words, at the bed-sides of our patients we find that it is in diagnostic means, and not in therapeutic resources, that our existing knowledge is most frequently deficient.

Every medical man is constantly meeting with difficulties in practice, and would often gladly avail himself of an opportunity of resolving these difficulties by appealing to the judgment of some older and more experienced practitioner. Ask the medical practitioner what the nature of the difficulties is which he most frequently encounters in practice. If he will properly analyse the subject, he will confess to you that his difficulties most usually consist in exactly determining what the special disease, or diseased action, in his patient may be; not in determining what he should employ for its cure, provided he were once perfectly certain of its precise nature, and precise seat and extent. The real difficulties of the practitioner do not commonly consist of doubts about the nature and details of the therapeutic measures which he ought to use; but they consist of primary doubts and uncertainties as to what the diseased action is, against which he is to turn his diversified therapeutic resources. They are doubts, not about therapeutics, but about diagnosis.

Since the diseases of the uterus and its appendages have of late years attracted so much more the attention of the profession than they formerly did, one grievous error has been committed in their study and investigation. It is an error which has been committed often in the study and investigation of the diseases of other organs, before we arrived at a sufficiently full and sufficiently comprehensive view of the morbid affections of these organs. The error I allude to is the error of exclusiveness. Formerly many practitioners seemed to look upon all diseases of the uterus as diseases indicative of debility; and they treated almost every one of them with muriate of iron and other chalybeate preparations; sometimes adding, where there was any discharge, the local employment of astringent or tonic injections. I fear that even yet you will find some old practitioners treating their uterine cases upon this sole principle. Then a second set of pathologists would, if we may judge from their writings, seem to suppose that all diseases of the uterus are marked by, if they do not consist of, congestion and engorgement of blood; and that they are to be remedied by the remedies applicable to this state. A third set, again, look upon the general run of uterine cases as almost invariably inflammatory in their nature, and imagine that we are sure, or almost sure, to find in every case inflammation, or some of its results—as ulceration, purulent discharges, etc. A fourth set would seem to fancy all uterine ailments to be produced by some mechanical displacement or dislocation of the uterus, and to consist of prolapsus, versions, and flexions, of this organ upon itself, and upon the neighbouring parts. Again, there are some practitioners—one, in particular, in immense practice in America—who would appear to believe that the affections of the uterus are fundamentally nervous or neuralgic disorders, and that they are always to be treated by the local inunction upon the cervix uteri, of morphia, aconite, and similar sedatives. Another section of pathologists imagine the so-called uterine diseases are, after all, not uterine but ovarian; and that ovarian irritation and inflammation are actually the source and origin of much of the suffering that is imagined to be uterine in its seat. Lastly, for it is needless to extend this tedious enumeration, you will find another set enjoying the belief that these supposed uterine or ovarian diseases are not at all uterine or ovarian in their origin, but in reality diseases of the general system; they may not deny that local affections do occur in the uterus and ovaries, but these local affections are, in their opinion, results and effects of some more general constitutional disease of the nervous system, or of the economy at large.

All of these views are correct in one respect, that they are all founded partially, though only very partially, upon truth. For, no doubt, the uterus is in practice seen to be liable to one and to all of these morbid states. Thus it is liable to congestion, to inflammation and its consequences, to displacement, to neuralgia, etc.; and the ovary is liable also to ovaritis, etc. But all these opinions are excessively unsound and excessively wrong in another point of view, viz. from their having been in practice pushed by those who have adopted them, to such an extreme and exclusive length, as to amount in some instances to a practical fallacy and a practical error of the greatest possible magnitude. It shall be my earnest endeavour to prove to you that in relation to the uterine, as in relation to other organs, all such extreme and exclusive views are ever erroneous views. The diseases of the uterus are not always of one kind and of one character; they are of many different kinds and different characters, and require in consequence many different modes of treatment; and we should place ourselves under the most foolish and fatal fallacy, if we supposed that there was only one series of morbid actions liable to go on in the uterus and its appendages, and only one method of treatment applicable to all their diseased states.

No doubt all such errors in pathology and practice as I have just now adverted to, will gradually die away, as medical men become more intimately acquainted with uterine affections, with their pathology and treatment, and above all, as they become more intimate with the proper means of making a diagnosis of the affections of the internal reproductive organs in the human female. Certainly such errors will be best corrected in each of you, by each of you studying earnestly and carefully the means of diagnosticating the different morbid states and morbid actions to which these organs are subject. And, as I have already mentioned, it is my main object at present to point out to you by what different means the diagnosis of uterine and ovarian diseases may be effected, and to state to you the general principles of diagnosis which we can apply to their detection and discrimination. In doing so, I shall enter into no historical details; the knowledge I wish to impart to you is that kind of practical knowledge which we constantly require to use and apply at the bed-side, and which we must be able to employ in the daily and hourly exercise of our profession.

In attempting to make a diagnosis of the diseases of the uterus and its appendages, as in attempting to make a diagnosis of the diseases of most internal organs, the physician calls in to his aid two sets of symptoms—viz. first, the Rational, Dynamic, or Functional Symptoms, as they have been termed; and secondly, the Physical or Anatomical Signs and Symptoms. Let us first note the very marked and important difference which exists between these two sets of diagnostic phenomena—since we thus may have the

SYMPTOMS OF UTERINE DISEASE, EITHER 1. DYNAMIC, OR 2. PHYSICAL.

Under the Dynamic, Rational, or Functional Symptoms are included all those lesions, deviations, or derangements in the functions of the affected organ, in the functions of other organs that sympathise with it, and in the functions and state of the system generally, that can possibly be excited by the disease or diseases that we may happen to be investigating.

On the other hand, the Physical Signs or Symptoms consist of those means of diagnosis, and particularly of those exercises of the senses of touch, sight, hearing, etc., by which we can attain a knowledge of the anatomical structure, form, density, colour, position, etc. etc., of the organ which is diseased. By this latter set of symptoms or signs—the Physical—we attempt, in fact, to read and discover within the living body the actual morbid anatomy of the organ or organs that are affected. We endeavour by them to study and to ascertain, as exactly as possible, upon the living patient, those anatomical lesions and changes which we should expect to detect on the post-mortem examination of that patient, provided the disease proved fatal.

In detecting and diagnosticating the diseases of the different organs and parts of the body, the practical medical man has recourse sometimes more to one of these sets of symptoms, sometimes more to the other. A diagnosis always becomes more and more accurate, the more we can conjoin both means of investigation, and draw our deductions from both sources of evidence. Of the two sets, the Rational or Functional symptoms are the least to be depended upon; or, at all events, our diagnosis is always the less accurate, the less we can take advantage of the Physical or Anatomical signs.

Surgical diagnosis is, as a whole, more accurate than medical diagnosis. But why is the surgeon more accurate in the discrimination of the affections which he treats than the physician? Merely because he can, and does, found his diagnostic deductions far more upon Physical symptoms; while the physician is of necessity driven to depend more upon the Rational or Dynamic symptoms. In fact, in making a diagnosis of the diseases submitted to his care—viz., those placed upon the external surface of the body, the surgeon relies almost entirely upon physical diagnosis alone, because he can handle and examine the diseased parts by direct tactile examination, and by direct visual inspection. Deprive a surgeon of these means of physical diagnosis, and throw him back merely upon the functional or dynamic symptoms that may be present, without allowing him to exercise his sense of touch, or sight, or hearing, in the discrimination of the cases submitted to him, and you will find him as much or more at fault than the physician sometimes is. Take, for example, a case of any disease of the eye, leading on to imperfection and dimness of sight. No surgeon would venture to make a decided diagnosis of what that dimness or blindness was produced by, provided he were allowed to appeal to the dynamic or functional symptoms only. He might be told fully as to the mode and manner in which the blindness came on, as to its varieties under different circumstances, as to its being accompanied or not with pain or lachrymation, etc. etc.; but these and other circumstances would often be inadequate to enable him to decide whether the imperfection of vision arose from an affection of the cornea, or of the iris, or of the lens, or of the retina, or of some other parts; or by what particular affection of these parts it was produced; while an inspection of the diseased eye itself by the surgeon—that is to say, a glance at the physical symptoms or physical diagnosis—would probably enable him to resolve at once all these difficulties, and to ascertain determinately and unequivocally what the diseased state of the organ really was.

It is very different with the physician, in reference at least to some classes of affections. For in some he cannot avail himself of any of these measures of physical diagnosis which the surgeon finds to be so absolutely necessary to enable him to come to a correct decision in surgical cases. In affections, for example, of the brain and spinal cord, and of their membranes and component parts, the physician can, with a few rare exceptions, make use only, in his diagnosis, of the dynamic or functional symptoms. It is only these symptoms that he can reach in this class of diseases. For we have no means as yet, and, in all probability, will never have any, in this special class of affections, of ascertaining, in the yet living subject, what the special anatomical lesions are, that may be present in the encephalon or in the spinal canal. We cannot reach and search these cavities and their contents by any modification of hearing, or touch, or sight. We can ascertain the morbid derangements that may take place in them only by studying the changes and derangement of function to which their presence gives rise in the nervous system generally, in the different parts of this system, and in the functions of those organs which are liable to be more directly or indirectly influenced by that system.

In other classes of disease, the physician, however, has fortunately the power of appealing to physical signs as well as to rational symptoms. He can derive his deductions of the diseased states of the organs themselves from both classes of proof; and you will always find that in medicine our practical knowledge of these diseases has progressed proportionally with the amount and extent to which physical diagnosis has been applied in their discrimination. There is no set of organs, for example, the pathology and practical knowledge of which has advanced more in modern times than that of the organs contained within the chest. If you look into any work on the affections of the heart or lungs, written thirty or forty years ago, you will find a strange contrast between its contents and those of any modern work written on the same subject. Formerly, physicians were often in error in regard to their cases, as to what this or that thoracic affection might be; and their true nature was often only accurately detected after death. The modern physician has almost always the power of discovering what the affections of the heart and lungs are, even during the life of the patient; and can trace, usually with great accuracy, their morbid anatomy while the patient is still alive. Mark what this difference between thoracic medicine, thirty or forty years ago, and that department of medicine now, is to be attributed to. It is entirely attributable to the fact, that while in former times physicians were obliged and necessitated to attempt the diagnosis of these diseases by functional symptoms only, they have now the power of aiding and correcting that method of diagnosis by ascertaining a series of physical signs appertaining to almost every disease of the heart and lungs, through the instrumentality of auscultation and percussion. No careful or judicious physician depends now for the diagnosis of these chest affections upon functional symptoms only; but he appeals constantly, in aid of his diagnosis, to the more certain signs which may be derived from the pleximeter and the stethoscope.

I might safely repeat the same remark, and with nearly exactly the same degree of truth, with regard to the affections of the uterus and internal female organs. Formerly, and even in our own days still far too frequently, the physician has been led to suppose that he could make a diagnosis of diseases of the uterus by depending and relying upon functional symptoms only. A little practice will, however, I believe, readily convince you, that in most cases we are necessitated to have recourse to a physical diagnosis in order to obtain anything like an accurate knowledge of the diseases under which our patients are labouring. Do not suppose that, in making this remark, I mean to imply that the functional symptoms are of no value. Nothing could be farther from my belief and conviction. I by no means wish to state that they are of no value; all I mean to state is, that they are not of sufficient value to make a sufficient distinction between the different individual or special diseases of the uterus and uterine appendages.

And now, having made these too diffuse introductory remarks, let me call your attention to what the *functional* and what the *physical* symptoms of the diseases of the uterus and ovaries really consist of. And first, let us consider

THE RATIONAL OR DYNAMIC SYMPTOMS OF UTERINE DISEASE.

The uterus performs at different times different functions. During menstruation its lining membrane forms and exudes the so-called menstrual fluid. In the intervals between menstruation we have merely a mucous secretion flowing from the same tissue. And again, it performs from time to time a variety of important functions connected with conception and pregnancy. Under different states of disease, one or more or all of these functions may become perverted. In other words, the first division of dynamical symptoms liable to occur in uterine disease consists of—

I. DERANGEMENTS IN THE FUNCTIONS AND VITAL CONDITION OF THE UTERUS ITSELF.—Thus the function of menstruation may become irregular in regard to the time of its occurrence, or the duration of its appearance;—or the quantity of the menstrual fluid which is thrown off;—or the nature of that fluid may vary; and it may or it may not be accompanied by pain and suffering;—and pain, if present, may be constant, or it may be spasmodic or paroxysmal. The mucous secretion may be increased or diminished in its quantity or quality, or it may become occasionally or constantly mixed with blood or pus. The function of conception may be interfered with, so that sterility is the result; or the uterus may not have the power of carrying the fœtus beyond the second, fourth, or sixth month, the patient being subjected to a series of abortions or premature labours.

The natural states of sensation of the uterus and its appendages may also be altered and perverted. They may be decreased, but this is rare. Far more frequently they are increased to a degree amounting to actual pain; and the pain may appear under very different modifications. It may be continuous or intermittent; it may be dull and aching, or pulsative, or lancinating, and extremely severe. Often, when it is present, it is accompanied with a feeling of heat and tension; and far more frequently still, with a feeling of weight and bearing down. Almost all these pains, resulting from diseases of the uterus or its appendages, are diminished by the reclining position, and increased by two circumstances,—by a long continuance in the erect posture, and by the active and congested state of the organs, which accompanies the secretion and elimination of the catamenial discharge. Most of the so-called local pains of the uterus are not situated in the position of the uterus itself, or at least in the central part of the pelvis; but the patient more frequently complains of them as located in one or other of the sides of the pelvis; most generally in the left side, in consequence, no doubt, of the left side of the uterus and left broad ligament and ovary being more liable to be irritated than the right, by the varying condition of the rectum, which enters the pelvis towards the left; and the distensions and accumulations in this portion of the intestinal canal are certainly often the more immediate exciting causes of uterine and pelvic pains, if the uterus and its appendages are tender and predisposed to suffer pain, in consequence of any diseased condition existing in them.

At present it would be out of place for me to dwell upon the irregularities and deviations which we meet with in practice, in these functional symptoms of the uterus in uterine diseases generally, and in different cases of the same disease. But let me make this one remark as a caution to you, I shall insist upon it more afterwards—viz. that identically the same pathological affection does not always affect identically in the same way the functions of the uterus. You may have, for instance, fibrous tumours in the walls of the uterus, one of the most frequent organic diseases in this organ, producing, as local functional symptoms, increased menstruation, or menorrhagia;—increased mucous secretion, or leucorrhœa;—pain during menstruation, or dysmenorrhœa; and, in the intervals between the menstruations, constant uterine pains and bearing down, and irritation of the bladder and surrounding parts. But in other cases of exactly the same organic disease, more or fewer, or indeed all of these symptoms, may be entirely wanting.

Anatomists tell us that the cerebro-spinal nerves which come to the uterus are principally distributed to the cervix uteri;—and hence it has been considered by some pathologists, that the diseases of this part of the organ ought to be accompanied with pain, although the maladies of the body and fundus of the organ may not necessarily give rise to this symptom. But the results of practice by no means bear out this theory. The two most common affections of the cervix uteri are,—1. Chronic inflammation and its consequences—hypertrophy, ulceration, etc.; and 2, Carcinoma of this part. In practice, cases of both of these diseases from time to time occur, in which, though the disease has progressed far, yet the patient has not been made aware of its presence by any increased tenderness or pain in the part, sufficient, at least, to attract her attention; and it is frequently very difficult to persuade the patient—nay, sometimes difficult to persuade the medical attendant—that such serious affections are present, because they incorrectly believe and argue that such affections could not exist without the accompaniments of local pain and suffering.

II. DYNAMIC SYMPTOMS IN OTHER NEIGHBOURING PELVIC ORGANS.—Dynamic symptoms often exist in connection with uterine disease, not in the uterus or its appendages, but in the parts and organs in their more immediate vicinity. There may be pains, for example, about the bladder or rectum; about the coccyx or sacrum; in the groins; or along the crest of the ilium, and, what is exceedingly frequent, down the limbs, along the course of the crural or sciatic nerves. Pains running from the lower lumbar region, or from the groins down along the limbs, are felt, and often felt severely, by females even during common menstruation; and intermittent pains in the lower part of the abdomen, or uterine colics, as they have been termed, are common under the same circumstances, as well as in different varieties of morbid uterine irritation. The functions of the rectum or bladder may be interfered with. Defecation may be difficult or painful. Often in uterine diseases there is constipation; and sometimes a want of power to expel the feculent matter, as if there was a kind of paralysis of the rectum; this last occurs not unfrequently in cases of retroversion of the unimpregnated uterus. In many cases the functions of the bladder are more or less affected. Micturition may be too frequent—a symptom that is common to many uterine diseases; or there may be great dysuria, as is often seen in cases of pelvic cellulitis, etc.; or there may be complete retention, as from the pressure of uterine tumours; or the result may be incontinence and impossibility of retaining the urine.

These various pelvic symptoms are, in some instances, mechanical in their pathology; in other instances they are sympathetic results. In other words, they are occasionally the direct result of the physical pressure of the enlarged or displaced uterus upon the rectum, or bladder, or trunks of the affected nerves. But, again, they may be present, and equally strongly marked, although the uterus is not unnatural in size, or unnatural in position; and consequently, when the origin of these symptoms cannot be mechanical. In these last instances, and perhaps they are the more numerous class, we speak of the resulting disturbances of function and increased sensations, as sympathetic or reflex—that is, as originating in an irritation primarily seated in the uterus and uterine nerves, but terminating and felt, secondarily, in the sensitive nerves of those other neighbouring parts which are affected.

This last remark leads me next to show you, that in diseases of the uterus, and its appendages, we have often the principal pains and sufferings of the patient not located in the uterus or in the pelvis itself, but located in other parts of the body; or we have a third series of dynamic symptoms, consisting of—

III. SYMPATHETIC PAINS IN DIFFERENT AND DISTANT PARTS OF THE BODY.—This important class of reflex sympathetic pains or neuralgias is often so marked and severe as to draw away the attention of the patient, and even of the practitioner, from the real nature and seat of the original and primary malady.

Of late years, much important physiological and pathological information has been laid before the profession regarding what are termed reflex motions. You are all well acquainted with the nature and mechanism of the motions that are designated by that term. You all know that they are muscular movements created by excitation upon distant mucous and cutaneous surfaces, the impression made upon these surfaces being conveyed by a nervous arc, which arc always passes through the spinal cord, to those muscles that are ultimately set into contraction by it. The surface or part primarily irritated and excited is often, in this way, far removed from the muscles or sets of muscles secondarily called into action. I believe that often morbid sensations originate in the same way; and that you can speak as truly of reflex sensations as of reflex motions. In your surgical studies you have all studied one form of reflex sensations—viz. the severe morbid pain in the knee-joint, which is so frequently found to accompany the early stage of morbus coxarius. It is impossible to explain, upon any mechanical principle, why a patient, labouring under disease of the hip-joint, should have the principal pain in the knee-joint. It is not explicable by reference to any amount of swelling in or around the diseased hip-joint, compressing the trunks of those nerves that supply the knee. In fact, the sympathetic or reflex pain in the knee occurs most generally in the very commencement of the disease, when the lining membrane merely of the hip-joint is as yet affected, and when there is as yet little or no swelling or effusion. An impression, or excitation, is conveyed from this affected membrane by the nerves which are distributed to it, and this impression is probably conveyed by them upwards, as high as the spinal cord; and then another impression would seem to be reflected or conveyed downwards from the cord along another set of nerves—viz. along those the branches of which are ultimately distributed to the knee-joint, the immediate seat of the so-called sympathetic pain. Or, perhaps, we may state the matter more correctly, if we say, that the trunk of the nerve going to the knee has a morbid sensitive impression made upon it somewhere during its course, as it passes through one of its higher plexuses, or at its origin in the cord itself, producing a change in it as if its own branches in the knee were painfully effected. Irritation of the mucous membrane of the bladder, to take another example, often gives rise to sympathetic or reflex pains in the orifice of the urethra, and along the course of the lower extremities. I have seen several cases where the small, red, granular, and very painful sensitive tumour which sometimes grows at the orifice of the female urethra, was accompanied with distressing pain in the heel and sole of the foot. But it is needless to go to other organs in search of such examples; the uterus itself affords us many marked instances, even when it is not diseased. Thus, when the uterus is distended and irritated in pregnancy, the patient often complains of reflex or sympathetic pains in the lumbar region, in the mammæ, in the nerves of the teeth, etc. When the uterus is the seat of actual disease, such reflex pains are, as I have just now stated, often very marked; and, at the same time, they are very apt to deceive and mask the original and primary disease. Some years ago, I saw a case, with Dr. Johnston of Berwick, which made a strong impression upon my mind, in relation to this question. The lady had been under the care of an eminent London accoucheur, and complained to him principally of pain in the mammæ, for which he had ordered, at different times, leeches, and a sufficiently varied course of sedative local applications, and numerous internal remedies. But he had not once examined into the condition of the uterus, which was the source of the sympathetic pain in the mammæ. She was suffering, in fact, not from any diseased state of the mamma, the organ which the physician was so assiduously treating, but she was suffering under a slow corroding carcinoma of the cervix uteri. At the time I saw her, the disease had already destroyed almost the whole tissue of the cervix, leaving the remainder of its excavated walls hard, rough, and indurated, like the interior of a dice-box. The dependence of the reflex or sympathetic pains seen in uterine cases upon the uterine irritation itself, as their primary source, is best seen in cases of displacement. By restoring a displaced uterus to its natural position, even though only temporarily, you generally at once moderate or entirely remove the attendant sympathetic effects. We cannot have the same precise proof in other uterine diseases, as ulcer, cancer, etc., because we cannot make the experiment of at once removing the primary irritation.

The reflex or sympathetic pains under which patients suffering from uterine diseases are liable to complain, may be situated in very different parts of the body. I shall enumerate the principal of them, and that, as far as possible, in the order of their frequency.

Pain in one or both mammæ, such as occurred in the case I have just now alluded to, is very common in many forms of uterine irritation or disease; but is seldom so very severe as it was in that instance. It is often accompanied by some degree of swelling or tension in the gland; and occasionally the areola becomes somewhat darker and changed, as in pregnancy. These mammary symptoms are particularly liable to be increased at the period of menstruation. If a patient complains to you of pain in this part of the body, without your being able to trace any local affection of the mamma itself capable of creating it, always make the necessary inquiries and investigations, in order to know whether some congestive, or inflammatory, or other diseased action, is not going on in the uterus.

Pain under the left mamma and upon the edges of the ribs on that side, is also very frequent, perhaps even more so than pain in the mamma itself. It has sometimes appeared to me to be more common, in cases of uterine or ovarian disease, occurring in the unmarried than in the married. It is probably as frequent in cases of uterine affections, as pain in the shoulder is in cases of hepatic affections. This pain under the left mamma is sometimes diffused along the side; but more usually it is limited, and the patient will tell you that she thinks she could cover the whole of the pained spot with a crown-piece. When it is not severe, it is not affected by the act of respiration; but in more severe cases, it is increased by deep inspiration; and many a poor patient has been bled and leeched, etc., over and over again, under the idea that this pain was an indication of pleuritic inflammation, when, in fact, it had nothing to do with pleurisy, or any disease of the chest; but was merely a sympathetic or reflex pain, and one entirely resulting from uterine irritation.

Pains in the right side, or right hypochondriac region, are much more rare, but are still sometimes also to be met with.

Pain in some of the vertebræ of the back, imitating spinal irritation, is often also an accompaniment of uterine irritation, and is not unfrequently combined with the existence of the pain under the left mamma. The patient principally complains of it when the part is pressed. Many a patient suffering from these sympathetic vertebral pains, in consequence of uterine derangement or disease, has been laid up and counter-irritated with the cautery, moxa, etc., under the idea that there was actual spinal disease present.

Pain in the lumbar region, or in the sacral and lumbar region combined, is especially common, as a sympathetic morbid sensation in uterine diseases, but particularly in those which consist of any displacement or enlargement of the organ. The great sacro-lumbar pain which the woman in labour suffers in the same part, is itself entirely a reflex or sympathetic pain of the character that we are speaking of.

Pains in the abdominal parietes also occasionally occur. Sometimes they are limited to one or other side, occupying the site of the ascending or of the descending colon. Occasionally they are confined to a limited spot. But in other instances we find the whole surface of the abdominal walls tender and neuralgic. And when this is the case, there is often co-existing a greater or less degree also of tympanitis—a kind of combination which is very apt to deceive the young practitioner into the idea that the disease of his patient is really more formidable than it actually is. For the combination may lead him to suppose that he has to do with a case of acute peritonitis, or, if it is of longer standing, with a case of serious enlargement and organic disease of the uterus, or ovary, or some abdominal organ. In some cases, the apparent tenderness is so great that the patient timidly shrinks under the least touch, and is even terrified at the approach and pressure of the hand of the practitioner.

Pains in the extremities and joints are sometimes secondary morbid results when the primary morbid irritation or disease is seated in the uterus. I have already stated to you that pain, stretching from the loins or pelvis downwards, along one or both of the lower extremities, is a very common symptom indeed in uterine diseases. In ovarian enlargement there is sometimes, particularly in the earlier stages of the disease, a morbid sensation of numbness and pricking in the corresponding limb; but this effect is probably mechanical, the consequence, that is to say, of pressure upon the nerves of the limb, and not true reflex or sympathetic results. I had occasion also to mention the occasional excitation of reflex morbid pain in the heel and foot, by the small sensitive vascular tumour that occasionally grows in and around the orifice of the female urethra. Other forms of irritation in the urinary canals may excite morbid pains in the same distant part; and I have met them also, but more rarely, in uterine cases, in which I could not trace any primary pathological disease in the kidneys, bladder, or urethra. Under the name of hysterical knee-joint, surgical authors describe a painful affection of that joint, occasionally accompanied by swelling and apparent effusion, and which has often been mistaken for the common white swelling, or scrofulous disease, of the same part of the body. The pain and other symptoms are so chronic and so marked, as sometimes to have led the surgeon to amputate the limb for supposed incurable disease of the joint. I feel well assured that in these cases the pain in the knee is almost always, or indeed always, a secondary or reflex pain, and that the primary source of irritation will be found in some other distant organ, and very often, indeed, in the uterus or ovary. Similar pains in the other joints of the extremities seem rarer; but are not altogether unknown. At present I have a patient suffering under chronic inflammatory ulceration of the cervix uteri, and profuse purulent discharge from that part, with much pain and tenderness in the canal of the vagina. But she is suffering still more from severe pain and tenderness of the skin and tissues lying over the head of the right radius. This pain in the arm has sometimes been so excessive as to deprive her of rest; and she herself maintains that it decreases and increases in correspondence with the changing state of the uterine irritation and discharge.

Pains in the face and head may also occur. I have already stated to you, that toothache, as a sympathetic pain, occurs occasionally in patients in the state of pregnancy. I have not had occasion to trace it distinctly, as a mere reflex and sympathetic pain excited by disease of the uterus. Local and limited pains, as over one or other eyebrow in the forehead, in the occiput, in the temple (clavus hystericus), etc., have appeared to me sometimes to be the secondary consequences of uterine irritation. The headaches, however, under which uterine patients so often suffer, are not generally direct secondary sympathetic effects of the uterine affection. The cephalalgia in these cases is almost always a kind of indirect result either of the anemia, or of the deranged digestion and assimilation, which so often come to attend upon chronic uterine affections. For uterine diseases frequently produce other deviations in the functions of the body than mere painful sensations. They often derange the functions performed by different organs. Let me state to you what phenomena, as rational or dynamic symptoms of uterine disease, we find most frequently referable to such.

IV. DERANGEMENTS OF FUNCTIONS IN DISTANT ORGANS.—We have already considered the *urinary bladder* as liable to be irritated and deranged in its function in uterine disease—sometimes mechanically, but very frequently sympathetically. Let me merely add on this point, that occasionally the urinary secretion is altered and very various in its character. The irritation of pregnancy is well known to produce changes in the urinary secretion, which have been considered as quite characteristic of pregnancy; sometimes the morbid secretion of albuminous urine occurs; and one or two rare cases have been recorded, in which women have suffered from diabetes when pregnant, and have recovered their usual health completely after delivery. It may yet be found that uterine diseases are also liable occasionally to derange and alter the urinary secretion itself; but the subject, as a source of any rational symptoms of uterine disease, has hitherto attracted no degree of attention. Uterine patients, when questioned on the matter, tell you generally, in relation to it, that the urinary secretion is most variable, and especially that it alters, from time to time, from being very profuse and watery, to being small in quantity and loaded with sediment. This sediment is usually composed of the urates; but I have seen the triple phosphate, oxalates, and other morbid ingredients in the urine, in uterine cases. I am not acquainted, however, with a sufficient number of facts to be able to state to you whether these occurrences are mere coincidences, or whether, in any case, the derangement in the urinary secretion, and the derangement in the morbid state of the uterus, stand in relation to each other in any respect as cause and effect.

The *intestinal canal* is an organ more frequently deranged in its functions in uterine disease than perhaps any other organ of the body. Usually the functions of it are performed sluggishly and inertly. Constipation is very often present; and the lower portions of the canal especially appear to have lost their healthy tone and power. At the second or third month of pregnancy the abdomen of the human female is often larger than it is when the uterus is actually still more enlarged at the fourth or fifth month. This early enlargement is the result of the derangement of the functions of the bowels, and more particularly of the accumulation of gases within them. In the same way a partial tympanitis often accompanies other morbid irritations of the uterus, as well as the irritation of it from pregnancy. Pregnancy is, as you are all aware, not unfrequently accompanied with dyspepsia in the form of gastrodynia, pyrosis, and other morbid symptoms; and nausea and vomiting are very common sympathetic phenomena in the pregnant state. All these symptoms occur also in connection with diseases of the uterus; though more rarely than with pregnancy.

Further, in uterine disease we find another abdominal organ not unfrequently sympathetically affected—I mean the *liver*. In very many women the biliary secretion becomes disordered at the return of each menstruation—in some a state of constipation, in others a state of diarrhœa, recurring during each menstrual period. The biliary and catamenial secretions seem almost vicarious of each other; and, as in other cases in which such physiological relations exist, the two functions are not unfrequently simultaneously deranged in their pathological actions also—both being occasionally increased or decreased together; or, what oftener happens, one being increased in extent and activity when the other is diminished. In some cases the cure of a uterine disease seems also to rectify the co-existent, and perhaps resultant, hepatic derangement; while, no doubt, also, in other cases we find ourselves altogether unable to amend and arrest uterine diseases and discharges, till we have, in the first instance, used appropriate means to modify and correct the attendant hepatic disorder.

The *organs within the chest* are more rarely affected. Often, indeed, there is palpitation present, but it is principally in cases where there has been a loss of blood from uterine disease, or a constant and profuse leucorrhœal discharge, weakening and debilitating the patient; or when a deranged state of the digestive functions has led on to the same result. Besides, in prolonged uterine disease, we very often find the mobility of the nervous system greatly increased; and palpitation in all such patients occurs readily under any excitement, and sometimes forms a sufficiently distressing, and, in their own opinion, an alarming symptom.

At first thought, one would scarcely expect to find the respiratory function ever affected sympathetically in uterine disease. I have, however, seen a sufficient number of cases, fully to convince me that there is in reality a true kind of *asthma uterinum*, as mentioned by the older nosologists. I saw, for example, within the last few days, a lady whose history is briefly this:—She never menstruated till she was twenty-eight years of age, but every month, or at the period of the menstrual molimen, there was, instead of menstruation, a distinct attack of asthma, lasting generally for two or three days, and sadly shattering and breaking down her constitution. Her state greatly alarmed her brother, who was himself a medical man. I attempted, during several successive months, to induce menstruation, by applying, at the expected periods, nitrate of silver freely to the interior of the uterus, by the usual instrument adapted to that purpose. Some sanguineous discharge was the result, with marked and evident alleviation of the asthmatic symptoms. At last I introduced a small galvanic pessary into the interior of the uterine cavity, and left it there for several months. After wearing it for a time, the patient menstruated regularly, the asthma entirely disappeared, her health and strength became restored, and, for the first time for many long years, she was able again to join in general society. Menstruation continued regular for some months after the instrument was removed, and the asthma was kept in perfect abeyance; but, on the recurrence of cold weather, she again failed to menstruate, and, instead of it, had one of her old attacks of asthma. At her own earnest suggestion and solicitation, I have, in consequence, again replaced the pessary, to which she herself correctly attributes the new life, as she describes it, which she has of late years gained. Perhaps such a result may appear not so paradoxical as at first sight it might look, when we remember that several German physiologists have insisted that menstruation is a kind of vicarious respiration, intended to rid the female system of a cumulative amount of carbon. And you know that Andral and Gavarret have proved experimentally, a few years ago, that in the human female there is a kind of direct relation and interchange between the amount of carbon discharged in expiration, and the amount of menstruation present; more carbon being always exhaled from the lungs when the patient is suffering under amenorrhœa, or when menstruation is arrested by pregnancy, than when she is not pregnant, and when she is menstruating regularly.

The *nervous system*, as I have just now had occasion to state to you, becomes weakened or mobile and supersensitive in most patients suffering under any protracted, and especially under any weakening form of uterine disease. There is languor, and at the same time excitability of mind observable to a distressing degree in many such patients. There is not the usual capacity for mental exertion. Not a few are morbidly despondent of themselves and of their state. We see, sometimes, sad evidence of the effects of uterine irritation upon the mind and nervous system, in the production of puerperal insanity. In all large asylums you will find cases of insanity combined with, if not resulting from, uterine irritation and disease; and in such institutions the paroxysms of mental excitement are very often seen to be regulated by the monthly recurring irritation in the uterus which exists during the days of menstruation.

Occasionally, in cases of uterine disease, there are lesions of the senses, more particularly of the sense of sight—sometimes the vision being impaired, and motes floating before the eyes. The whole muscular system, under such a condition, sometimes becomes debilitated and reduced in tone, the patient being unable to take anything like her usual amount of exercise. You have the same class of patients, in whom the nervous system is thus weakened and exhausted, occasionally complaining of prickling and numbness of the extremities, as if these parts were losing their power of motion and sensation. And local paralyses seem sometimes, though very rarely, to occur from the irritation of uterine disease in the same way as they are seen to occur from the irritation of pregnancy. The power of standing and walking is sometimes weakened and abrogated from another cause in uterine ailments—viz. from the uterus being so much enlarged or displaced, as to produce compression upon the nerves, etc., in the interior of the pelvis. I have seen several cases where this power was restored to the lower extremities, by restoring to its position a uterus that was retroverted.

In pregnancy, the *cutaneous surface* is sometimes affected sympathetically, ephelis and other eruptions appearing upon it. In uterine disease the skin is often dry and parched, and in an unhealthy state; and the cutaneous surface of the hands and feet is particularly liable to be easily chilled, perhaps from imperfect capillary circulation, or from imperfect innervation. I have under my care at present, in private practice, two cases of amenorrhœa, in both of which the face is thickly covered with acne rosacea. In one of these the cutaneous eruption has become more than once greatly diminished when the menstrual discharge was restored by the application of nitrate of silver and dry cupping to the interior of the uterus — so much diminished, as to impress my mind with the belief, that the eruption itself was a derangement in some way or other the direct or indirect result of the uterine disorder. Some women have, at each menstrual period, a slight erythematic appearance upon the skin of the face.

Some time ago I showed Dr. Christison an interesting case, in which there was amenorrhœa co-existing with such a profuse degree of *chronic salivation and ulceration of the lips and gums*, as at first to have impressed me, as it had impressed other practitioners, with the idea, that she was suffering under the effects of mercurial salivation. My inquiries, however, regarding her, quite satisfied me that she could not possibly have been taking any mercury. In what relation the amenorrhœa and salivation stood to each other, in this case, as in other cases, I cannot venture to determine. But you all know that in some women salivation is a very common dynamical symptom in pregnancy. The pregnant patient sometimes loses, in this way, large quantities of saliva daily, up to the very period of delivery.

The *thyroid gland*, in occasional and rare cases, enlarges in pregnancy. I have seen it enlarged also in uterine cases; but in this, as in others of these complications that I have named, we yet certainly want sufficient evidence to determine the actual relation between these functional derangements and the co-existing uterine disease and irritation. We have yet to study and learn, how far they stand related to each other as simple coincidences, or as regular sequences. And a more careful and complete investigation of them by pathologists would probably add considerably to the amount and value of the rational or dynamic symptoms of uterine disease.

In reference to all these morbid pains and morbid derangements of function, which may thus in different cases accompany, and be produced by, derangement or disease of the uterus or ovaries, let me make one more general remark—viz. that they are all liable to be more or less increased in character and in intensity at the menstrual period, when the uterus and ovaries become congested during the days of the usual menstrual molimen.

Lastly, among the dynamic symptoms produced by uterine disease, I have yet to state to you that these affections sometimes produce, and are accompanied by,

V. STATES OF GENERAL CONSTITUTIONAL DERANGEMENT.—The states of general constitutional derangement that may be found attendant upon uterine disease vary with the disease itself.

The inflammatory diseases of the uterus and its appendages are seldom so acute, except in the puerperal state, as to lead to much secondary fever; but inflammation occurring in the cellular tissue of the pelvis, or in the peritoneal coverings of the various pelvic organs, frequently leads to much constitutional disturbance; and if the disease is prolonged, and ends, as it often does, in suppuration, then you have very well-marked hectic symptoms usually supervening. I have more than once seen the hectic accompanying a pelvic abscess, mistaken for the hectic fever of phthisis.

Where there is much and continued loss of blood from polypus, or cancer, or other causes, you have the results and general effects of anemia and chlorosis superinduced, with their usual accompaniments of headache, palpitation, nervousness, etc.

But you have often chlorosis supervening, apparently paradoxically, under the very opposite set of circumstances, viz. where there is amenorrhœa, and partial or total suppression of the catamenial discharge.

In carcinoma of the uterus, the patient, after the disease begins to break up, usually exhibits the sallow, yellow complexion of organic disease; but it is generally mixed up also with pallid lips, gums, and other symptoms of anemia, in consequence of the frequent violence of the accompanying hemorrhages. In most such instances, and in the advanced stages of ovarian dropsy, the general atrophy and emaciation of the patient become at last extremely striking.

But in a large proportion of uterine ailments, especially in those of the slighter description, little, or indeed no appreciable amount of constitutional disturbance is produced. Let me merely further add, that when the disease is attended with exhaustion, or if the irritation of it has excited and weakened the nervous system, so as to render it supersensitive and impressible, hysteria in one or other of its multifarious forms is always apt to supervene.

We come now to another question—one I have already slightly alluded to, viz.—

WHAT IS THE DIAGNOSTIC VALUE OF THESE VARIOUS FORMS OF DYNAMIC OR RATIONAL SYMPTOMS, IN THE DETECTION AND DISCRIMINATION OF UTERINE DISEASES?

This question is in itself a very important one, and I think we can answer it satisfactorily and decidedly. For I feel assured that no man, who is practically acquainted with the diseases of the uterus, can have any hesitation in declaring, that the dynamic symptoms of which I have spoken, taken either individually or conjointly, are, in the general run of such cases, altogether incompetent and inadequate for the purpose of a perfectly correct and practical diagnosis of the different or specific affections, to which the uterus and uterine appendages are liable. But do not mistake me in what I wish to state to you upon this point.

There are two objects of diagnosis which the medical man is to consider, in relation to every case applying to him for relief, viz. first, What organ of the body is affected? and secondly, How is that organ affected? In other words, his first duty is, to trace out the seat of the disease, or the organ or organs which are diseased; and his second object is, to determine what special or particular affection of that organ or organs is present in his patient. Now, I do believe that the dynamic symptoms of uterine disease, such as I have described them to you, may enable us in most cases to determine that the uterus is affected. They are, in many cases at least, sufficient to decide us in relation to the first point that I have named; but they are perfectly insufficient, by their own unassisted evidence, to enable us to come to a decision in regard to the second point, viz. What is the special disease of the uterus, or uterine appendages, under which our patient is suffering? They generally afford us proof enough of the probability of the uterus being affected, without proving to us how it is affected. They may enable us to decide that it is the seat of some morbid state, or some morbid action, without enabling us to determine at all exactly what that morbid state, or that morbid action, may be; and, consequently, without enabling us to decide what should be the proper line of treatment requisite for the relief of our patient.

In treating of this important point—in endeavouring to show that the dynamic symptoms are not sufficient to enable a practitioner to make a differential diagnosis among the different diseases of the uterus—I have often found it difficult to impress deeply enough upon the mind of the student the fact, that there is no practical guiding relation between the kind or amount of uterine disease that may be present, and the character of the secondary dynamic symptoms to which it gives rise ; and hence, that he cannot, in practice, depend for the discrimination of the different diseases of the uterus from each other upon the dynamical or functional symptoms. But I think I can adduce in evidence, a case, with the peculiarities of which you are all sufficiently familiar to enable you to understand the argument, in relation to this question, that may be derivable from it.

The rapidly dilating and developing condition of the uterus during pregnancy, and the state of irritation produced by the ovum enlarging within it, may be regarded as the same condition in all women. Pregnancy is the same disease, if I may so term it, in all. In all cases the vital changes and actions going on in the walls and in the cavity of the uterus are identically the same. Yet mark how very different are the dynamic symptoms accompanying this same condition in different patients. Some patients during pregnancy are long unaware of the condition in which they actually are ; they suffer from no kind of complaint—from no form of distress—no functional derangement, or dynamic symptom. A second set of patients during pregnancy are afflicted with severe local suffering, from irritation, induced by the enlarged organ, in the bladder and the rectum ; or they have a feeling of prolapsus and bearing down of the uterus, with pains in the loins, etc. You will find another and a third series, not complaining of any local feeling or distress, but suffering under sickness and nausea—under general derangement of the stomach and intestinal canal—under headache and nervous afflictions—under toothache or salivation, and other derangements of the sensations and secretions of the body. But again, in another and in a fourth set of cases, we occasionally find all the most frequent dynamic symptoms, local and constitutional, of pregnancy present, and so well marked, as to impress both the patient, and sometimes even the practitioner, with the certainty of the existence of that state ; and yet, after the lapse of a little time, it may be found that the patient is really not pregnant at all ; the symptoms being sympathetic merely of some morbid state of the uterus or ovaries, but not sympathetic of the state of pregnancy, though very exactly similar to the symptoms which most commonly accompany it.

Observe, for a moment, what important evidence these well-known facts afford. They afford us evidence to this extent —

first, that in pregnancy we have the same identical condition of the uterus, not by any means always accompanied by the same identical dynamical symptoms, these symptoms varying greatly in different patients; and, secondly, they show us that the most usual dynamic symptoms—local, sympathetic, and constitutional—which we see produced by pregnancy, may be present in other conditions of the uterus than in the pregnant condition. But exactly the same two conclusions are true in regard to almost every one of the diseases of the uterus, as well as to its state of pregnancy. In different diseased conditions of the uterus, as in the condition of it in pregnancy, we constantly find the same specific affection of the organ exciting very different phenomena in different women. And further, we find that apparently, phenomena, or dynamic symptoms, which are nearly if not entirely identical, may be excited by two or more diseases of the uterus that are entirely different from each other in their pathology and in their treatment.

I have already alluded to the frequency of fibrous tumours in the walls of the uterus. Let me take them as an example of the remark—though, in fact, uterine pathology is full of similar instances. Fibrous tumours do not, in some patients, produce any very decided dynamic symptoms; and even when of large size, occasionally they may pass for years altogether undiscovered either by the patient or by the practitioner. Menstruation may be perfectly regular; and pregnancy even may take place. In other patients, however, these fibrous tumours, even when still small in size, sometimes, as I have already stated to you, produce distressing irritation among the pelvic viscera, and derange in various ways the physiological functions of the organ, leading on to menorrhagia, leucorrhœa, dysmenorrhœa, etc. Here, then, we have a disease identical in character in different patients, but producing in these different patients very different kinds of symptoms. And, if it were necessary, I might repeat the same kind of deduction, as derivable from the consideration of the different symptoms attending all other organic diseases of the uterus in different patients, as chronic inflammation, hypertrophy, polypus, cauliflower excrescence, carcinoma, etc. etc. In many cases carcinoma of the uterus produces, from a very early stage of its progress, distressing dynamic symptoms. But in others it marches onward in its fatal course for a long time, without occasioning almost a single dynamic symptom calculated to excite the attention or rouse the alarm of the patient; and when marked dynamic symptoms do at last supervene, how commonly are they mistaken for the symptoms of other and milder diseases of the uterus. I have often, on the other hand, seen cases which have been supposed to be cases of incurable carcinoma, when the disease was some more benign and perfectly curable form of uterine malady, such as inflammatory induration of the cervix, or polypus. In most, if not in all such cases, the error committed has consisted in the practitioner supposing he could make out the differential diagnosis of the disease by dynamic symptoms alone, and without calling in to his aid the evidence to be derived from physical diagnosis.

The most malignant organic diseases of the uterus may, as I have just remarked in relation to carcinoma, long remain occult and latent in their character; they may have marched far on to a fatal termination, without a single dynamic symptom being present calculated to warn the patient to any knowledge of her state of danger. But, on the contrary, we have often severe local and constitutional dynamic symptoms of uterine disease developed, and developed early, in instances of slight and remedial organic affections of the organs, as in simple chronic ulceration, and inflammatory eruptions upon the cervix. And again—mark this other perplexing fact—in other instances, all, or almost all, these dynamic symptoms may be present, in their most aggravated forms, for months, and even for years, in instances of the so-called irritable uterus, or in neuralgia of the organ—that is to say, in a set of cases where there is actually no organic disease at all, and where there may be much real distress, but not much real danger.

To sum up these remarks in one more general deduction, let me observe, that we sometimes have the same apparent train of local and secondary dynamic symptoms in neuralgic, in inflammatory, and in benign and malignant organic diseases of the uterus. And, in whatever way we may explain the fact, it is still an undoubted important pathological and practical fact, that in uterine diseases there is generally no very direct or fixed relation observable between the intensity and character of the local pathological disease which is present, and the intensity and character of the dynamic symptoms to which that disease gives rise. The accompanying dynamic symptoms may be severe, where the local disease of the uterus is slight and simple; and, on the other hand, it too frequently happens that the local disease of the uterus is severe and serious in its nature, when the dynamic symptoms that accompany it are apparently trivial and transient in their character. It is in consequence of this want of relation between uterine diseases and their dynamic symptoms, that it becomes so requisite in this class of affections to have recourse to physical diagnosis, in order to determine what ascertainable changes have taken place in the structure and organisation of the uterus or its appendages. It is only by instituting, in this way, a physical diagnosis, that you can hope, in most instances, to decide upon the specific nature of the uterine disease that may be present. In many cases we may make, as I have already repeatedly stated to you, the general diagnosis of the existence of uterine disease, by the consideration alone of the rational symptoms, or functional derangements, to which such disease gives rise. We can only make a differential diagnosis of what the existing specific disease is by physical diagnosis ; or, in other words, by the physical examination of the anatomical conditions of the organ itself.

The necessity of physical diagnosis will, I believe, be willingly confessed by all practitioners in relation to the diagnosis of one uterine state, that is not a state of disease. I specially allude to the illustration which I have already brought before you, viz. the state of pregnancy. In deciding upon the existence or non-existence of pregnancy in any cases of doubt or importance, no medical man, who valued his professional reputation, would deem himself justified in offering a final and decided opinion upon the subject, by considering the dynamical symptoms alone—symptoms, which I have already described to you to be sufficiently varying and equivocal in different patients. No medical man would venture to form a definite deduction and judgment upon the matter until he was allowed to make some physical diagnosis of the condition of the uterus,—that is, until he had ascertained by sight or touch, or both, that the abdomen was really enlarged ; until, probably, by a careful external examination of the abdomen by the hand and stethoscope, he had ascertained that the existing tumour was really uterine, and really contained a fœtus ; or, in the earlier months, until, perhaps, he was permitted to make a vaginal examination, in order to make out the state of development, size, etc., of the uterus. Exactly in the same way, in deciding upon the pathological nature of any marked uterine disease, and consequently upon the line of treatment which it may require, we believe precisely the same caution to be necessary, and the same local examination to be requisite, where there exists any doubt, and where such a local examination is not otherwise counter-indicated. And in a practical point of view, the examination in a case of uterine disease is far more necessary, because far more important, than in the case of pregnancy. In pregnancy the local examination is had recourse to, in order to determine a point which time itself would soon alone determine. In uterine diseases the same physical examination is had recourse to, for an object of much more immediate and practical moment, viz. to obtain information sufficient to enable us to form a correct and precise judgment as to the specific pathological nature of the case before us, and, consequently, to enable us to select the proper remedial measures for its treatment and cure.

WHAT ARE THE MEANS OF PHYSICAL DIAGNOSIS, THAT WE MAY USE IN DISEASES OF THE UTERUS, OVARIES, ETC.?

Now, in the diagnosis of these diseases, we require to use the sense of touch, and occasionally of sight, hearing, and smell. We require to use the sense of touch in the external and internal examination of the region of the uterus and of the surrounding parts. We require to use the sense of hearing in the employment of auscultation or percussion. We require to use sight in the use of the speculum. And the nature of the fœtor emitted by the vaginal discharge is sometimes almost enough in itself to decide for or against the existence of extensive carcinomatous ulceration and disintegration.

The os uteri is, as you are aware, an opening so narrow as not to allow the passage of the finger through it for the examination of the interior of the cavity or walls of the viscus. But it is most important, in some cases, to be able to make an examination of this cavity and of these walls, for the purpose of ascertaining various points with regard to their condition; and in order to do so, we may pass through the os a slender metallic finger, or, in other words, use the uterine sound. Or, if necessary, we may enlarge the size of the opening of the os, so as even to admit the finger itself, by introducing a series of dilating sponge-tents into the cavity of the os and cervix uteri. Occasionally matters are discharged from the cavity of the uterus, of which it is necessary to ascertain the character and source; and, in some instances, we are aided in coming to a decision upon this matter by the use of the microscope and by chemical tests. Sometimes there are fluid collections in the cellular tissue of the pelvis, or in the ovary; and it may become a matter of life or death to the patient that we should be able to trace what the character of these effusions really is, and, in particular, whether they are inflammatory and purulent or not. We cannot reach them with the finger, but we may reach them with the exploring needle, and in this way trace their true character. Lastly, in cases of neuralgic tenderness of the abdomen and passages, and more especially when these are combined, as they often are, with tympanitic distension and enlargement of the abdomen, giving an appearance of formidable enlargement and very serious disease, it is sometimes impossible to make an accurate examination of the abdominal and pelvic viscera till the patient is fully anæsthetised; and you have seen in the hospital more than one case where the employment of chloroform has, in this way, at once dispelled what previously seemed to be an undoubted and enormous ovarian or uterine tumour.

We have thus, you will observe, a variety of means of physical diagnosis, that we may resort to in the detection and discrimination of the diseases of the uterus, and ovaries, and neighbouring parts; and, if we attempt to classify them, we may reduce them to the following order:—

1. The external or abdominal examination of the patient by sight, touch, auscultation, and percussion.

2. The tactile examination of the uterus, ovaries, etc., by the vagina or by the rectum.

3. That most important mode of diagnosis, viz., the simultaneous combination of the external and internal modes of tactile examination.

4. The use of the speculum.

5. The use of the uterine sound.

6. The use of sponge-tents, with the view of dilating the os uteri, so that the finger can be introduced into the cavity of the cervix or cavity of the body of the organ.

7. The microscopic and chemical examination of the discharges from the uterus and vagina.

8. The employment of the exploring needle in cases of fluid collections, in order to ascertain the contents of such collections; and

9. The adoption of anæsthetic agents, to relax the abdominal parietes, and enable us to practise the different modes of examination, in cases of excessive or neuralgic tenderness of the abdominal surface or vagina, etc.

LECTURE II.

ON VESICO-VAGINAL FISTULA.

I PURPOSE to devote the first of these Clinical Lectures to the treatment of perhaps the most distressing and deplorable of all the infirmities to which woman is liable, viz. chronic perforation of the septum between the bladder and the uterine passages, permitting the escape of urine, and designated, according to its seat, urethro-vaginal, vesico-vaginal, or vesico-uterine fistula. This is certainly one of the most afflicting accidents that can befall the parturient female; for, though it is not immediately fatal, it renders life miserable, seeing that the acrid urine is constantly escaping and excoriating and irritating the pudenda and thighs; and too often its continual decomposition makes the unhappy patient not only loathsome to herself, but an object of disgust to all around her.

I speak of the treatment of this disease more willingly because it was long looked upon as incurable, and reckoned among the opprobria of surgery. With others, I used to regard a patient afflicted with it as a case generally beyond all relief and all hope. But within the last few months I have come totally to change my opinion; and I want now to tell you by what means we can cure—I had almost said, certainly and easily cure—most cases of vesico-vaginal fistula.

The following is the history of a woman operated on for this disease, and who laboured under it for eight years:—

Mrs. M'K., aged 40, a native of Ireland, has been married twenty years, and given birth to ten children. The last two labours were attended with difficulty, from the fact of the presentations being irregular. She is not sure whether instruments were used to effect delivery or not, but she kept her bed for more than a year after her last confinement, and it was about a fortnight after that she first found the urine dribbling away, which it has continued to do ever since, producing constant soreness and great annoyance and discomfort.

She first came under my care about two months ago, and at that time she was placed on the table with a view of being operated on; but the great extent of the fistula, and the complete extroversion of the bladder through it, deterred me; and those of you who were present at the operation yesterday can best judge how formidable a case it was. The opening was large enough to admit easily three fingers; the anterior wall of the vagina was so far destroyed that one of the middle stitches used to close the gap touched at one extremity the cervix uteri, and reached at the other to within an eighth of an inch of the orifice of the urethra: and its form was very irregular, varying with the movements produced by the muscular contractions of the part. Then the constant protrusion of the red and vascular anterior wall of the bladder, projecting like a hernial tumour through the wound, complicated the first stage of the operation, and rendered the paring of the edges very difficult, from the risk of wounding the bladder. This difficulty I attempted to get over by introducing a heavy bullet of lead attached to a wire, expecting, as the patient was placed on her hands and knees, that the weight of the lead would keep the anterior wall of the bladder down in the abdominal cavity; and it did so, so long as the patient kept quiet; but the moment she coughed, or gave utterance to a cry of pain, the bullet was shot out, and the bladder was protruded as before. Yesterday I tried to keep it down by means of a sound passed through the urethra, but the bladder continued to press out on each side of it; and I only succeeded in getting the edges at last partially pared by having the bladder kept back by means of a whalebone probang, tipped with a piece of sponge, and pushed through the fistula. Having pared the upper and lower margins of the fistula, I passed a wire ligature through them, and had the ends of it drawn tight and fixed. In this way the hernia of the bladder was prevented from recurring, and I was enabled to make raw the remaining parts of the fistulous border with more ease and safety. The edges were then brought into apposition by means of eight iron-wire stitches, and kept in apposition by means of an iron-wire splint, and of which I shall have something more to say hereafter. The patient is quite well this morning, and no urine escapes per vaginam. I can hardly bring myself to believe, however, that the operation will be at once completely successful, when I think of the great extent of the fistula; and then the catheter which had been provided proved to be too short (for the patient is even stouter than the generality of such patients are liable to become from their inactive life); and the urine for some time was not allowed to drain away so freely as it ought.

Here I show you a wire splint with stitches, which I this morning removed from a patient on whom I operated nine days ago. The woman is now in her 66th year, and has suffered during nearly the half of her lifetime from a vesico-vaginal fistula resulting from a tedious labour. The opening was situated high up, close to the portio vaginalis uteri, and of small size, requiring only three stitches to hold the pared edges in apposition. For thirty two years she has not been able to retain a drop of water, except once or twice when the temporary swelling of the edges of the fistula produced by cauterisation with the galvano-cauter of Marshall and Middeldorpf, prevented for a few hours its escape per vaginam. Since yesterday week every drop has come through the catheter.

Passing from these special cases, allow me to make some general remarks upon this deplorable disease; and,

1. As to its *cause*.—It is most commonly found as a consequence of difficult and prolonged labour, more especially the latter; and this result has been attributed, 1st, to the long-continued pressure of the fœtal head on the maternal passages, producing mortification and sloughing of the vagina, and part of the wall of the bladder; and, 2dly, to direct injury from the use of instruments. That in such cases the fistula is not usually caused by the forceps or other instruments employed, is proved by the fact that the urine does not flow per vaginam immediately, but only begins to trickle away some days afterwards, when the slough commences to separate, and leaves a communication between the bladder and vagina. It is far more frequently caused, I believe, by the mere morbid prolongation of the labour giving rise to inflammation and sloughing of the compressed soft tissues, than it is caused by obstetric instruments employed to shorten the duration of parturition. It may in some cases, however, be caused by the direct use of instruments. A patient, the subject of fistula, lately told me that she met with her misfortune many long years ago, at the hands of a medical student, who attended her as his first midwifery case, and who, in using a lancet to evacuate the liquor amnii, by perforating the membranes, wounded instead the urinary bladder. Vesical fistula has sometimes been produced by the incautious use of the perforator. It has been known to arise also from long retention of a pessary in the vagina. Stones and foreign bodies in the bladder are said to have occasioned vesico-vaginal fistulæ, by the ulceration which they set

up; in some instances it has more certainly been left as a result of removing calculi from the female bladder, by incising the vesico-vaginal septum. I have often seen it in cases of cancer of these parts, complicating and aggravating a malady already sufficiently distressing, and then, of course, irremediable. I had in the hospital here under my charge, some years ago, a very rare case, where a vesico-uterine fistula ensued from an abscess forming between the bladder and uterus, and opening into both organs. After some weeks the inflammatory deposit became absorbed, and simultaneously the fistula contracted, gradually healed up, and at last completely closed.

2. In regard to their *situation*, urinary fistulæ in the female usually implicate the base of the bladder where it rests on the vagina, sometimes high up, sometimes lower down, but commonly at some point in the bas-fond. Occasionally the perforation is into the urethra. In very unusual cases only is the communication between the bladder and the neck of the uterus.

3. Their *extent* is very various. Sometimes they are so small as only to permit the escape of the urine by drops, and hardly to admit of the entrance of the finest probe. At other times they are of vast extent, as in our case of yesterday, where the whole base of the bladder, and the corresponding part of the vagina, had sloughed away. The opening may be, and usually is, single; but occasionally there are two or even three of them. As regards the extent of the wound, I would only make this further remark, that the size seems to make little difference as to the power of the patient to retain her urine, for almost the smallest opening is sufficient to let out the water, accumulation of which in the bladder depends more on the situation of the opening very high up in the vagina, than on its diminutive size in any case. You will find that some patients with vesico-vaginal fistula acquire a power of collecting a considerable quantity of urine in the vagina and bladder as long as they maintain the recumbent posture.

4. The *shape* of the opening may be round or oval, or very irregular. In the patient operated on yesterday it looked of irregular T shape, or more circular, according to the degree of contraction going on in the septum and the degree of protrusion of the bladder.

5. The *diagnosis* is usually so easy that I need not dwell upon it. The loss of power of emptying the bladder, and the constant escape of water by the vagina or vulva, taken in connection with

the antecedent circumstances, excite your suspicion, and all doubt may be at once cleared up by introducing a catheter into the bladder, and passing your finger along the anterior wall of the vagina, when you may touch the catheter through the opening. Any further uncertainty, in regard to its size and relations, may be removed by introducing a duckbill speculum into the vagina, when the opening will be exposed, and a probe or larger instrument may be introduced through it into the bladder. Occasionally the diagnosis is not quite so simple. In a patient whom I have seen with Dr. Thomson, the fistula is so minute that at first it was with difficulty detected. On watching carefully the vesico-vaginal wall after the single-bladed speculum was introduced, a very small quantity of clear urine was at last seen issuing from one point, and through this point or fistula only a very slender wire could be passed. In vesico-uterine fistulæ, in order to discover the perforation you will generally require to plug the os uteri with a sponge-tent. The use of the tent aids the diagnosis in two ways. First, by its presence it prevents the escape of urine per vaginam, thus proving the communication with the bladder to be placed higher than the os uteri. And, secondly, the due expansion of the os and cervix uteri with tents will enable you to reach the fistula with your finger, or a sound, so as to empower you to trace the intercommunication between the urinary and uterine cavities.

In instances in which the diagnosis proved obscure, either from the smallness of the opening in the vesico-vaginal septum, or from its being of the vesico-uterine variety, the obscurity of the diagnosis might perhaps be cleared up by water, and more particularly by milk or coloured water, being injected by the urethra into the bladder, while the vagina, os uteri, and anterior wall, were exposed to sight by the use of the single-bladed speculum, for the point of issue of the fluid would immediately guide us to the site of the fistulous communication.

6. *Prognosis.*—Till lately, most obstetricians and surgeons despaired of being able to do anything in the way of a radical cure of vesical fistula. My predecessor, Dr. Hamilton, used to speak of such cases as utterly incurable; and Dr. Davis averred that all reported cases of cure were misrepresentations. Vidal, whose book is probably more extensively read on the Continent than any other systematic work on surgery, says: "I do not believe that there exists in the science of surgery a well-authenticated complete cure of vesico-vaginal fistula, a fistula due to a loss of substance from the

bas-fond of the bladder." I have often seen cases operated on, and in many different ways, and have sometimes tried to operate myself; but till lately I never saw a cure. I have often seen a large opening reduced to a small size, but the smallest opening left is enough to keep up all the patient's misery. Matters are, however, entirely and happily changed; and this leads me to speak of—

7. The *treatment of vesico-vaginal fistula.*—One former mode of treatment consisted in introducing a catheter into the bladder as soon as possible after the fistula had formed, and leaving it there to prevent accumulation of the urine, in the hope that in the contraction which ensued after the sloughing the fistula might close up. Cases of success from this treatment have been reported from the time of Desault downwards. But it can scarcely be expected to succeed in puerperal vesico-vaginal fistulæ, except either when they are very small, or the result of cutting instruments. This simple means has apparently also succeeded in some cases in which an opening in the vesico-vaginal septum was intentionally made for the purpose of removing calculi from the urinary bladder.

Caustics and the actual cautery have long and frequently been employed, but with a success which at the best is usually only temporary. So long as the swelling of the margins produced by the application of the irritant continues, the escape of the urine may be restrained; but when this has subsided the case soon becomes as bad as ever. I have seen this treatment applied by Dr. Liston and others, and have often adopted it myself, but I never once saw it succeed in affecting a complete cure.

It has been also proposed to close vesico-vaginal fistulæ by obstructing them, for a time, with a removable plug of caoutchouc, or gutta percha, applied on the principle of the ball-valve, to their vesical opening; and again by filling them, when small, with hemp or worsted threads, and withdrawing a thread from time to time as the perforation contracted. I have perseveringly tried both of these plans in very favourable cases, but altogether without any beneficial result.

Nearly two centuries ago, in 1663, Hendrick van Roonhuyse, a practitioner of Amsterdam, whose name is connected with the history of other suggestions in operative midwifery, first proposed to cure vesico-vaginal fistulæ on the same surgical principles as harelip—namely, by paring or vivifying the lips of the fistula, and then bringing and keeping their raw edges together with stitches of silk. But there is no evidence that Roonhuyse ever put his own proposition into practice. In the course of the last century, Voelter of Wurtemberg, and Fatio of Basle, were the first apparently to try this operation; but both of them failed to cure their patients by it. Even the very remembrance of this method of treating vesico-vaginal fistulæ seems to have afterwards fallen into oblivion, till, in 1812, the late Professor Naegele of Heidelberg recalled the attention of the profession to it. I am not certain who had the good fortune first to cure a case by this means. But during the last half-century many modes of vivifying the edges of the fistula by differently shaped knives, scissors, and caustics, have been suggested and practised; many varieties of stitches employed—as the "interrupted," the "continuous," the "quilled," the "twisted" suture, etc., and many means and modes of passing these stitches or sutures have been proposed. It has been attempted even to introduce the stitches from the cavity of the bladder, as well as from the vagina. And other means than stitches have been employed to hold together the raw lips of the fistula, such as the bladed compresses or leaf-like instruments suggested by Naegele, Laugier, and Lallemand. Serres fines have also been used in this way. But sutures of hemp and silk have been most commonly made use of, and some cases have been published where they were reported as successful. Jobert of Paris, and Wutzer of Bonn, who have operated in this way by paring the edges and bringing the raw surfaces into apposition with them more frequently and with better success, perhaps, than any other surgeons, have effected cures only as exceptional instances; and when in Bonn, I saw Wutzer operate for the fourth time on the same patient. In Paris they still operate in this way, as I learn from a letter I had a day or two ago from Dr. Bozeman, who saw Robert lately close up the wound with tape. Lately, Simon of Darmstadt has reported some cases of success by using a kind of double silk suture.

The grand revolution, however, that has of late been accomplished in the success of the operation for the cure of fistula, is owing to a change in the mere material of the suture, or, in other words, owing to the introduction of metallic sutures instead of the sutures of hemp and silk or other organic materials which were formerly employed to bring and keep the edges of the wound in apposition; and the success which attends their use is to be explained by the important general law that living tissues bear the contact of non-oxidisable metallic bodies for any length of time without being excited to take on an inflammatory action, or if such action be excited, it does not usually go beyond the stage of adhesive inflammation. We see this law in surgical pathology exemplified in those cases where bullets, small shots, needles, etc., get lodged, and remain imbedded in the tissues for many years, without causing any high grade of inflammation. There was here, a few weeks ago, a noble duke who carries in his shoulder a bullet which got lodged in his body in the time of the Peninsular war, now more than forty years ago. Silk and other organic sutures, on the contrary, produce an inflammation which soon passes on to suppuration and ulceration, or the higher grades of the inflammatory process. We see a striking proof of the different effects of the two kinds of suture in this, that formerly, when silk or hempen threads were used in the operation for vesico-vaginal fistula, cures were so rare and exceptional, that a successful case was boasted of as a triumph; whereas, during the last two months, I have operated in four cases, using metallic sutures, and all but the first of them have been successful; and three cases of vesico-vaginal fistula cured in succession, each by one operation, was a success which we formerly never dreamt of. Dr. Marion Sims of New York, who has in a great measure led the way in this modern revolution regarding the treatment of vesico-vaginal fistulæ, tells us that he operated twenty-nine different times on one unfortunate patient, using always threads of hemp or silk, and always without success; but that on using metallic sutures in the thirtieth operation, a cure was at once effected.

Last summer, I took occasion to make an extensive series of experiments upon the relative merits of metallic inorganic sutures and ligatures, and upon the relative surgical qualities of different metallic threads. These experiments were, for the most part, kindly performed for me by my friends Mr. Edwards, Mr. Jardine Murray, and Dr. Coghill, and the subjects of the experiments were a number of unfortunate pigs, which were always, of course, first indulged with a good dose of chloroform. We made corresponding wounds of various kinds, usually on directly opposite sides of the body, and sewed some with threads of silk, hemp, cotton, etc., and others with threads of silver, gold, platinum, lead, iron, etc. As a general result, the contrast between wounds sewed with organic threads and wounds of corresponding size and situation upon the same animal, sewed with metallic threads, was most striking and remarkable. For while the silk and other organic sutures almost invariably began to inflame and suppurate along their tract a few days after their introduction, the metallic sutures remained, as it were, quite passive in the lips of the wounds, and without exciting any appreciable inflammatory disturbance. I have seen enough of cases in the human subject to convince me that the same comparative results, as a general law, follow the uses of these two forms of suture in the surgery of the human body. In fact the surgeon is almost invariably obliged to cut out a silk or other organic thread a few days after its introduction, in consequence of the suppuration and ulceration which its detention excites. You may leave, on the other hand, a metallic suture, without any such consequences, for weeks or months instead of days.

Why do metallic threads not lead on to the higher degrees of inflammation, such as suppuration and ulceration along their tracts and in their neighbourhood, as organic threads do? I believe this question is to be solved by the mere fact of metallic bodies or threads lying unchanged and inert in and among the tissues with which they are in contact. If we introduce a metallic wire into a part, it has no power of absorbing the fluids there, and lies in apposition to the tissues without irritating them. A thread of silk absorbs the fluids thrown out—lymph, or pus, or whatever else it might be—and these dead fluids remaining in the thread, and becoming decomposed, render it a small tract or nidus of putrefaction and infection. In the experiments already alluded to, I repeatedly took silk threads which had been a few days in the lips of wounds in the pig, and had there produced suppuration in their tracts, and placed small portions of them in the bottom of new wounds in the same animal. Within a day or two, severe inflammation, sometimes of a carbuncular form, appeared in the lips and sides of these new wounds, showing the acrid and morbific nature of the dead and decomposing materials absorbed by and retained within these organic threads.

What metal is best? This question has been often asked, and variously answered. Sims uses always silver wire in preference to any other. Mettauer, like Dieffenbach, operated with leaden wires. I have always used the ordinary simple and cheap blue iron wire of the shops; and believe it is the best. What is required is a material not readily oxidisable, and possessed of a certain degree of strength and tenacity. Now, it has been found that a certain thickness of wire, if made of lead, will sustain a weight of 1 lb., silver 9 lbs., platinum 13 lbs., iron 26 lbs., from which it will be seen that iron wire will not so readily give way as some of the others. But is it from any particular reason more irritating than these, or more likely to produce a high, and dangerous, or destructive degree of inflammation? The liability of iron to rust, or become oxidised, at once occurs to most minds as likely to impair its usefulness, and render it irritating to the tissues with which it is brought into contact. But we know that iron, in some forms, does not become oxidised in the body, and causes no disturbance whatever in the tissue. Needles, for instance, usually excite little or no inflammation; and I show you here a portion of a needle removed by Dr. Murray from a child's foot, in which it had lain three years and four months without becoming in any degree roughened on the surface by rust or oxidation. And Schönbein has shown that by being submitted to certain processes, iron may be rendered what he calls "passive;" and, in this passive state, it is not at all liable to become changed and oxidated. For while iron, in the ordinary condition, gives rise to a sort of effervescence on being introduced into strong nitric acid, of specific gravity 1·3, this phenomenon is not seen when the iron is in the passive state. This condition may be induced in various ways —by passing a piece of wire through the flame of a spirit-lamp, by introducing the wire into nitric acid at the same moment and in contact with a piece which is already passive, or, as in the wire which I commonly use, by annealing, which is done, I am told, by putting the hot wire into an oil bath. The wire, then, which I always use, and which I believe to be the best, as it certainly is the cheapest, is the ordinary annealed iron wire of the shops, and of the size known as No. 32. I have by me here some specimens of iron wire coated with tin, silver, etc., as well as wires of platinum and other metals; but not one of them fulfils any indication better than the simple annealed blue iron wire, which may be bought at any wire-worker's for a shilling a pound. Through the kindness of my esteemed friend, Dr. Aveling of Sheffield, the firm of Cockers Brothers, of that town, have lately manufactured an iron wire for surgical purposes drawn out of the finest procurable material, and, in this respect, superior to the common iron thread I have always used.

Subsequently I will explain minutely the mode of performing this operation, step by step.

LECTURE III.

ON VESICO-VAGINAL FISTULA.

Before explaining the details of the operation for the cure of vesico-vaginal fistula, allow me to observe that you must choose a bright clear day for it, and have the patient placed well exposed to the light. It is an operation for a sunny summer, rather than for a bleak November, day, as you must have abundance of light sent along the speculum to enable you to guide your knife and needles correctly and safely. When operating on a patient some days ago, the light was sometimes so obscured by heavy passing clouds, that I was obliged at times to desist; and particularly if one of these clouds came athwart the sky after the needle had been passed, I found it quite impossible to introduce the wire into the eye until the cloud had cleared away. Then you will require three or four assistants. One is always necessary to hold the speculum *in situ*, to keep aside one of the labia pudendi, when required, with the finger or with a bent copper spatula, and to be ready to hold aside some of the ends of the wires. Another will, if requisite, keep aside the other labium, and catch the ends of wires on his side; a third takes charge of instruments and sponges; and the fourth attends to the exhibition of chloroform, provided the patient is placed under its influence. The mere amount of pain endured by the patient is perhaps less than in most surgical operations, as the walls of the vesico-vaginal septum are far less sensitive than you would *a priori* imagine.

In what position will you place your patient? Formerly we were generally advised to have her placed on her back, as in the position for lithotomy. Wutzer turned his patients upon the belly. Dr. Sims has effected an important improvement in teaching us to place the patient either on her elbows and knees, or simply on her left side and somewhat prone, and to introduce a duckbill speculum, resembling the one I now show you, with which the rectum is pulled upwards, and a flood of light thrown on the exposed fistula. The instrument I hold in my hand is one slightly modified by Dr.

Bozeman, from the original pattern of Dr. Sims; and a very good and serviceable speculum it is for this operation. But it always seems to me that it might be improved by being made self-adjusting and self-supporting, by means of a spring or screw, as we might then dispense with the services of an assistant, for whom it is a very irksome task to hold this heavy instrument so long and so steadily in the required position.

Having thus arranged for the position of the patient, and the exposure of the fistula, you have now to consider what instruments you are likely to require. Taking the after-treatment into consideration as part of the operation (as, indeed, it is essential to its successful issue), you will find the proceedings divisible into five stages, in each of which a particular instrument or set of instruments comes into requisition.

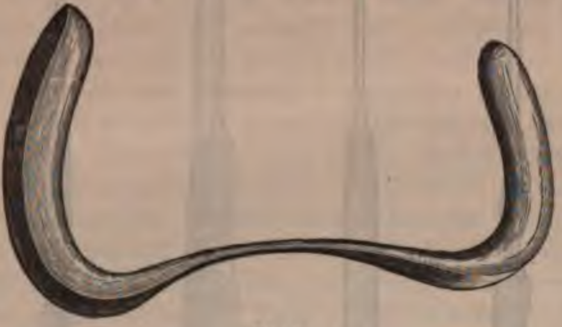


Fig. 1.

1. The edges have to be pared.
2. Stitches have to be introduced.
3. The raw surfaces have to be brought into apposition.
4. The threads have to be fixed or tied, and the lips of the wound kept firmly together.
5. A proper catheter must be chosen and adjusted, and an appropriate and careful after-treatment has to be pursued.

1. Paring the Edge of the Fistula.

For denuding the margins of the fistula, you require to catch up the middle point of the edge of the lower lip of the fistula, with a long-shafted tenaculum (Fig. 2), or with artery forceps, or with a small vol-

---

Fig. 1. The speculum used in operating on vesico-vaginal fistulæ, with blades at either end of different sizes (quarter size).

sellum, and then the cutting is effected either with knives or scissors, or both. Sims and Bozeman use both—the scissors being employed by the latter to pare the upper border of the fistula, or to remove any small portions of mucous membrane that may chance to have been left. I find that I can succeed best with knives alone for this and for all the other purposes in which cutting is required in the operation. You may either employ the two knives of Mr. Baker Brown, the blades of which are set at an angle to the shaft, with the cutting

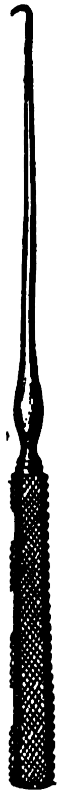


Fig. 2.

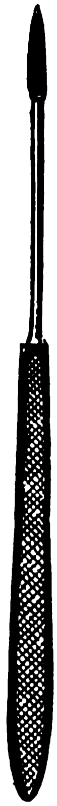


Fig. 3.

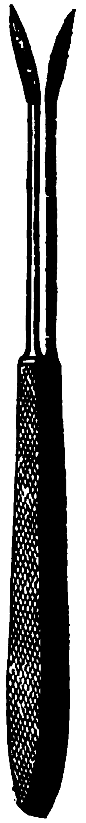


Fig. 4.

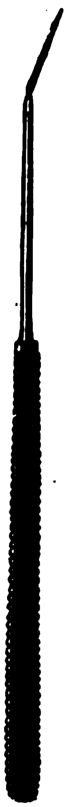


Fig. 5.

Fig. 2. The tenaculum, or sharp hook used for catching up the edge of the mucous membrane of the vagina around the fistula (half-size).

Fig. 3. Straight knife used for paring the edges of fistulæ (half-size).

Fig. 4. Bent knife used for paring the edges of fistulæ (half-size.)

Fig. 5. Lateral view of the same (bent) knife to show the angle at which it, the blade, is bent (half-size).

edge of the one turned to the right, and the other to the left side (Figs. 4 and 5), or you may use a straight spear-shaped knife (Fig. 3), which will serve alone all your objects. In performing this part of the operation, you must be careful to have the edges bevelled off to a considerable distance from the vesical margin, so as to leave as large a surface for adhesion as possible; and to effect this with greater certainty, you will do well to enter the point of your knife into the vaginal mucous membrane at some distance from the fistula; then transfix with your knife the edge of the fistula to the extent you intend to remove it, and bringing it out at the vesical border, carry it right and left fairly round the opening, so as, if possible, to bring out a complete circle of tissue. Do this part of the operation cautiously and carefully, and I would beg to add slowly, in order that you may do it thoroughly and well. In this way you can make sure of leaving a raw surface all around the opening, and this is absolutely essential to the success of the whole operation, seeing that the least bit of mucous membrane left would prevent the much-desired union by the first intention. I have here a very ingenious knife invented by Dr. Heywood Thompson, of Aigburth, furnished with a blunt protecting blade in the manner of the razors used by insane persons, and intended to prevent the knife from cutting too deeply. Naegele seems to have thought of a similar knife for the same purpose.

In certain cases Jobert, after paring the edges, dissects the cervix uteri from the bladder close up to the peritoneum, with the object of allowing the edges of the fistula afterwards to keep better in apposition; but this proceeding seems both very unnecessary and very dangerous, and serves, perhaps, in some degree to account for the mortality of the operation which has happened from his mode of operating.

You will require a pair of long artery forceps to seize and twist any small vessel that may bleed very profusely; or you may have ice provided to stop any hemorrhage that occurs; but usually time and exposure to the air, or the temporary introduction and pressure of a sponge in the vagina suffices. And now you may allow your patient to rest for a little, to see that all the necessary apparatus is prepared for

2. THE INTRODUCTION OF THE STITCHES.

Till lately this has been found to be the most difficult part of the operation, and that which demanded the greatest expenditure of time, when metallic sutures were used. For the fact is, that metallic threads cannot be inserted easily into the lips of any wounds with common surgical needles. If the angle of the metallic thread, passing through the eye of the needle become bent or twisted, or even displaced, the thread will not readily follow the needle. To overcome this difficulty, Drs. Sims and Bozeman have been in the habit of first passing needles armed with silk threads, to the ends of which the metallic threads were subsequently attached and so pulled through. In this way they passed always a double set of threads, first a set of silk threads, and then a set of metal threads. For passing the needle, Dr. Bozeman, like Wutzer, Jobert, and others, has invented an ingenious porte-aiguille, while Sims uses a simple notched pair of forceps, which answers the purpose admirably well. In my first cases I followed out the same plan for introducing the stitches, viz., silk first, and afterwards iron threads; but having found it exceedingly cumbersome and tedious, I had recourse to a long needle on a fixed handle bent towards the point at an angle and

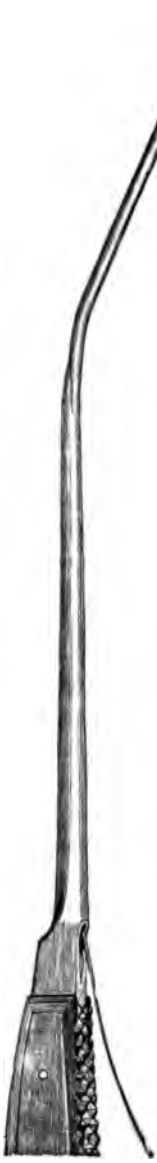


Fig. 6.

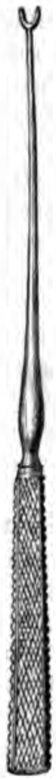


Fig. 7.

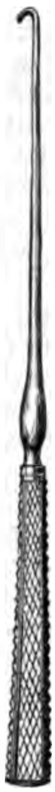


Fig. 8.

Fig. 6. Tubular needle for passing wire threads through the lips of vesico-vaginal fistulæ. A wire is represented as passing through the tube. The figure is of full size—the extremity of the needle looking thicker and larger than it really is. Only the commencement of the handle is represented in the woodcut.

Fig. 7. Fork or pulley used in drawing through the wires to prevent them from cutting the vaginal mucous membrane above the wound (half-size).

Fig. 8. Blunt hook for directing the point of the needle (half-size).

distance corresponding to the bend and length of the blade of the knives I have shown you. This I first passed through the two edges of the opening; and then having introduced the end of an iron thread into the eye, I withdrew the needle, and in this way brought the thread backwards through the fistulous margins. The introduction of the stitches was thus so far simplified, and the time spent in the previous passing of silk threads was saved; but still there remained the difficulty of passing the iron thread into the eye of a needle situated in a deep and rather dark cavity. This final difficulty was got over in the operation formerly noticed (Lecture II.), by the use of the hollow needle (Fig. 6). The immediate idea for the construction of this instrument was derived from the description of my friend, Mr. Startin, of London, of a curved needle which he was getting made. The needle which I have had made for vesico-vaginal fistula is formed of a simple tube fitted into a metallic groove, to which the handle is fixed; one orifice is close to the point, the other is near the handle. The wire is pushed a little way into the latter of these orifices, and afterwards, when the needle has been passed through the margins of the wounds, it is pushed right through, and seized with a long pair of dressing forceps. The needle being then withdrawn, the iron thread is left in its place, and may be pulled through as far as is required. In pulling it through, you may make use of a fork or director (Fig. 7), invented by Dr. Bozeman, to prevent the wire from cutting the mucous membrane. The only other instrument required in this stage of the operation is a blunt hook (Fig. 8), which is used to fix and support the parts through which the eye of the needle is to pass; or rather the points from which it has to emerge. In this respect, you will find it of great use; and the hooked extremity holds forward and steadies the end of the needle after it has protruded, until you have secured and pulled forward the wire. If the thread is thus drawn through sufficiently before the needle is retracted, you have no need of Dr. Bozeman's "fork." Let me make one observation more, and that a most important observation, regarding the breadth and depth of the stitches which you introduce. I have advised you to pare the edges of the fistula fully and freely; I now beg to advise you further to bring together its pared edges with stitches that will hold strongly and steadily. Enter your needle below, and make it emerge above, nearly half-an-inch on either side of the fistulous opening (see Fig. 9), where the distance of the entrance and exit of the threads from the edges of the fistula is represented perhaps as too narrow. When the iron threads are at last pulled together, this distance will appear greatly diminished. And pass your needle down near to the mucous membrane of the bladder, or down near to the vesical side of the wound, without, however, allowing it to perforate through the vesical mucous membrane itself. If it does happen to pass either thus too deep, or not deep enough, withdraw it and reintroduce it properly. It is a thousand times better to do this and other steps of the operation well, than to do them quickly.

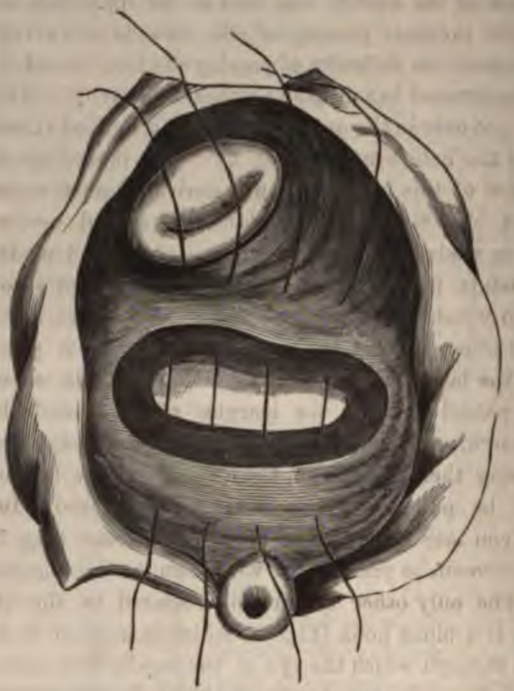


Fig. 9.

3. Coaptation of the Edges of the Fistula or Wound.

Dr. Bozeman recommends the edges of the wound to be brought closely together by passing the ends of each pair of threads through the perforation of this, his "suture-adjuster" (Fig. 10), and sliding

Fig. 9. View of the anterior wall of the vagina, with the os uteri above and the orificium urethræ below; and showing a fistula with the edges pared and the stitches passed. (Modified from a figure by Sims.)

the adjuster along them down to the wound, when by pulling tightly on the extremities of the sutures the raw surfaces may be brought into apposition. The stiffness of the wire suture prevents the reopening which would ensue on the removal of the adjuster, from the elasticity of the tissues, if sutures of silk or hemp were employed. But perhaps the best form of "adjuster" consists of your own fingers applied to the wires passed through the lower lip of the wound. For if you merely pull tight each separate pair of threads, and then the whole together, and press up below the lower layer of them the inferior lip of the fistula so as to press it against the upper, you will usually get the lips into more perfect apposition than by other means. In this and the next part of the operation, as the ends of the different wires are liable to become entangled with each other, you will require to be provided with a sort of rake or small steel rod, bent near the point at a right angle, with which you will be enabled to separate the extremities of the several stitches. To facilitate the apposition and adaptation of the lips of the wound, Dieffenbach proposed to make incisions through the mucous membrane at short distances on either side; but these, I believe, will rarely, if ever, be found necessary.

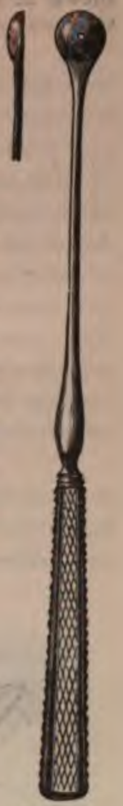


Fig. 10.

4. The Securing of the Threads and the Consolidation of the Parts.

After the margins of the fistula have been pared, the stitches properly introduced, and the raw surfaces brought fairly into apposition, the next point is to tie and fix the threads in such a manner as to favour a speedy union, and provide against the reformation of the fistula. It is in the manner in which this object is sought to be attained that we find at present the chief differences in the modes of operating pursued by the various surgeons and accoucheurs who have lately been giving their attention to this subject. Dr. Sims now contents himself with introducing a series of simple silver sutures, inserted closely together, and fixed by being twisted at the extremity. He adjusts the edges by pulling the ends of the wires

Fig. 10. Bozeman's suture-adjuster. The long figure gives a face view of the instrument, the short figure gives a lateral view of its extremity (half-size).

with a pair of forceps, steadily through a sort of adjuster held in his left hand, and afterwards used as a fulcrum of support, whilst the wire is twisted by making a rotatory motion with the forceps, as shown in Fig. 11. But it is a grave objection to this plan of procedure, especially in large fistulæ, that it makes no provision against the movements which are produced in the surrounding parts and lips of the fistula, by the spasmodic workings of the muscular wall of the bladder, and of which we have an evidence in the frequent

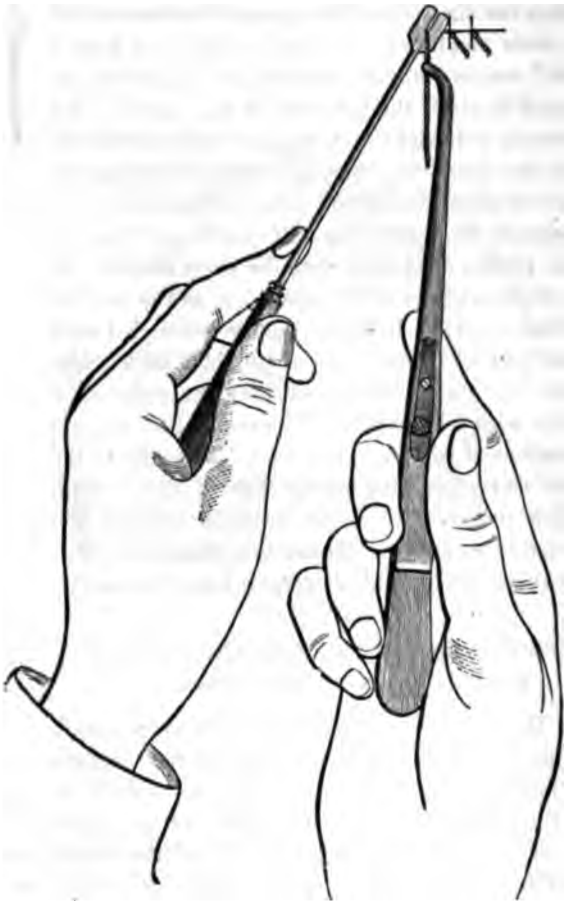


Fig. 11.

Fig. 11 shows the manner in which Sims adjusts and fixes the silver sutures. (After Sims.)

twistings and occasional expulsion of the catheter. The simple twisted wire stitches offer no check to this muscular action, and afford little or no support to the yielding margins of the wound either transversely or longitudinally; and the consequence is that the urine is liable to be allowed to pass into the wound at some temporarily gaping point, and thus prevents adhesion.

As it is essential to the success of the operation that this spasmodic action of the bladder be restrained, or its effect at the seat of the wound counteracted, one or two important additions have been made to the simple suture. Dr. Sims used at one time what he called a "clamp-suture," the essential part of which consisted of two longitudinal metallic bars to be placed on each side of the wound, and with perforations in each corresponding to the number of stitches introduced. Through these the ends of the threads were fixed by means of split shot, compressed tightly upon them. The ulceration produced by the pressure of the clamps has induced him, however, to lay them aside, and to use solely, as I have said, the simple metallic sutures, as was done several years before by his countryman Dr. Mettauer.

An important improvement was effected by Dr. Bozeman, in the introduction of what he has called the "button-suture." The "button" or shield consists of an oval piece of flexible lead, rendered concave on the surface which is to lie next the wound, and perforated along the ridge with a row of holes corresponding to the number of stitches used. The ends of threads having been brought through these holes, the button is pushed down along them and adapted to the part by means of a special instrument—the "button-adjuster." A small perforated "crotchet" or pellet of lead is then passed over the ends of each suture, and afterwards pushed down close to the button, and tightly compressed by means

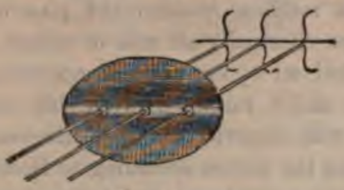


Fig. 12.

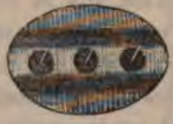


Fig. 13.

Fig. 12. Bozeman's "button" as it is being passed along the threads down to the wound. (From Bozeman.)

Fig. 13. Bozeman's "button-suture" finally applied and fixed with perforated shot. (From Bozeman.)

of a pair of strong forceps—the so-called "crochet-adjuster." By this excellent and original contrivance the parts are settled and consolidated, in one direction at least; for all motion is prevented longitudinally, or lengthways, in the direction of the wound; but it may still be produced crosswise, or transversely to the course of the wound, as you may satisfy yourselves by handling this piece of soft leather on which Bozeman's suture-apparatus has been fixed. I operated on one patient according to this plan, but the operation did not succeed, and I should not be inclined to repeat it. I used five stitches in this case, and the failure was due, I believe, to the circumstance that, in attempting to adjust and compress the third or middle "crotchet," I accidentally crushed it obliquely, so that it was not accurately fitted to the corresponding perforation in the "button." I observed this at the time, but as I could not remedy it without removing three of the stitches and introducing others in their place, I thought it better to finish the operation and trust to the other four sutures keeping the edges sufficiently in apposition. On the second day, however, urine began to escape through the wound; and when the apparatus was removed on the tenth day, a small opening was left at the site of the central thread. This unfortunate result was, perhaps, owing to my own awkwardness; but where the consequences of a slight mistake are so important, it would be well to simplify as much as possible the plan of the operation, and so obviate more effectually all risk of failure. On the next occasion where I had an opportunity of operating for vesico-vaginal fistula, I was under rather unfavourable circumstances—in the country, and with imperfect instruments—so that I had not the means of applying the button according to Bozeman's method. I therefore made two parallel rows of holes along the leaden plate, and bringing the respective ends of each suture through opposite perforations, I simply tied them across the intervening ridge or bar. No doubt tying or twisting the threads in this way is simpler and easier, and less complex, than fixing them with a leaden shot. In this case the patient had had the fistula for twenty-nine years; but now she can retain and make her water as comfortably and freely as she ever did in her younger days. In removing the button on the tenth day after the operation, however, it struck me that it had very nearly proved unsuccessful from the amount of transverse motion that had been going on, and that had prevented the edges of the button from constantly resting on the surface of the vagina.

To consolidate the lips of the fistula and surrounding parts, therefore, still more, and to keep them perfectly at rest in all directions, I have used an iron-wire splint (such as the one already shown you) in the last three cases in which I have operated for vesico-vaginal fistula. It is made by twisting with the fingers ten to fifteen strands of the iron thread into a cord, the ends of which are then doubled over each other and plaited round into the form of a circle. This is very light and flexible, and may be compressed into an ovoid or other shape, according to the necessities of the case. A sharp-pointed instrument or borer is used for passing among the wires to make a corresponding number of openings

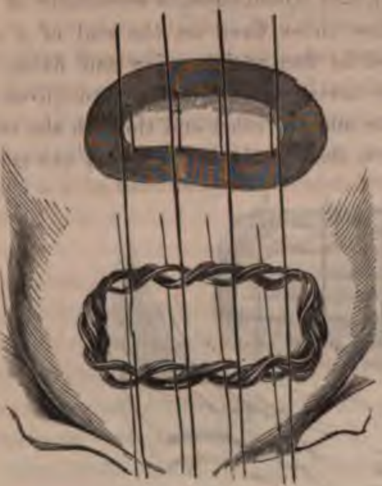


Fig. 14.

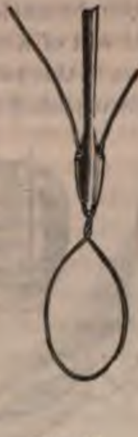


Fig. 16.

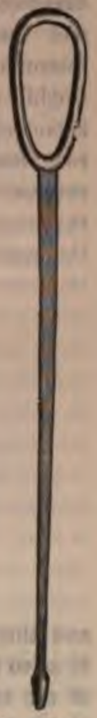


Fig. 15.

Fig. 14 shows the iron-wire splint as it is being passed along the threads down to the pared wound. A fistula of this size would require more stitches than are represented in the woodcut.

Fig. 15. The instrument for adjusting and twisting the ends of the wires after the splint has been applied. (Half-size.)

Fig. 16. The end of the same instrument represented of full size, and as in the act of twisting the wire passed through its two terminal eyes.

along each side to admit the ends of the several sutures. Those coming from the lower margin of the wound may be first passed, in their order, through the perforations on one side of the splint, and then those from the upper margin through the respective opposing holes on the other side. With the fingers or a pair of dressing-forceps, the splint may now be passed down to the wound, and there carefully and accurately adjusted and adapted. An instrument which was invented by my late able assistant, Dr. Coghill (see Figs. 15 and 16), and which consists essentially of two extremely short and very fine tubes fixed on the end of a steel rod, should then be employed for finally tightening and fixing the sutures. One end of a wire having been brought through one of the small tubes of this twister, and the other end through the other, the instrument is pushed down close to the lower bar of the splint; and then both ends of the suture having been drawn quite tight, so as to make the splint compress and consolidate the parts, a turn of the twister suffices to fix them there. To make sure, you may give a turn or two more, and then clip through the threads close to the point of the twister, with a pair of stout sharp scissors. If the fistula is low down, you may, as I have once or twice done, tie the threads with the fingers by a common double surgical knot. The open wire splint allows you to see all that is going on while adjusting the wires and fixing them, and afterwards it keeps the parts around the wound firm and motionless in every direction. In fact, when this splint is used, and properly fixed, all the lips of the fistula or wound included within the circle of the splint are held, as it were, in a consolidated state, and the included portion of vesico-vaginal septum can neither be moved longitudinally nor

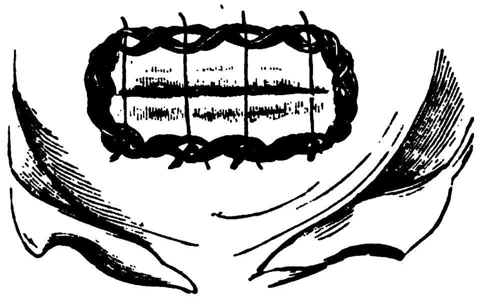


Fig. 17.

Fig. 17 shows the iron-wire splint finally adjusted, and the ends of the stitches twisted and secured across the lower bar of the splint.

transversely. It solidifies, if I may so speak, for the time being that portion of the mobile vesico-vaginal septum, and thus promotes greatly the chances of union. A portion of fine wire-cloth or gauze, of the same shape, and strengthened by having its margin turned in and doubled, will fulfil the same important indication, and can be made also readily into a splint of Dr. Bozeman's button form, but much lighter than lead.

5. THE AFTER-TREATMENT.

When the operation has been thus far completed, the case still demands an amount of careful attention and treatment which is as important as the performance of the operation itself.

Immediately after the operation, and before the patient has been removed from the table, the water which may have been accumulating in the bladder is to be drawn off, and means must be taken to prevent its re-accumulation in any degree during the whole period that the apparatus is allowed to remain. The collection of the smallest quantity of water would have a distending action on the bladder, and would tend to separate the lips of the wound, between and into which the urine would immediately pass, and lead to disastrous consequences. To avert these, the short sigmoid catheter —made of some flexible metal, with a quadruple row of holes at the inner, and a runlet or gutter at the outer extremity, of a thickness suited to the peculiar case, and of just sufficient length to allow the gutter to project beyond the labia—is to be at once introduced into the bladder, and left there to drain away the constantly secreted urine. It must, particularly at first, be looked at every ten or fifteen minutes in order to see that the water is dropping freely from it; and whenever the flow is seen to be checked, and is not restored by passing a probe along the tube, it must be taken out and cleaned. It ought, moreover, to be taken out and cleaned thoroughly twice a-day. The vagina may be very gently washed out with some tepid water two or three times daily.

On the eighth, ninth, or tenth day, the splint may be removed. This is easily effected by clipping through, with a pair of sharp-pointed scissors, the stitches just below the twist and close upon the lower side of the splint, which is thus loosened, and which can now be removed by being cautiously lifted upwards, great care being taken not to stretch and tear open again the lips of the closed fistula. When simple stitches are used without any button or splint, in the manner now recommended by Dr. Sims, great care is needed to cut through the wire in the loop, as represented in Fig. 18, for each suture is usually sunk deep into the tissues, and if the projecting twisted portion be removed, the part that remains will get more imbedded, and its removal will be rendered more difficult.

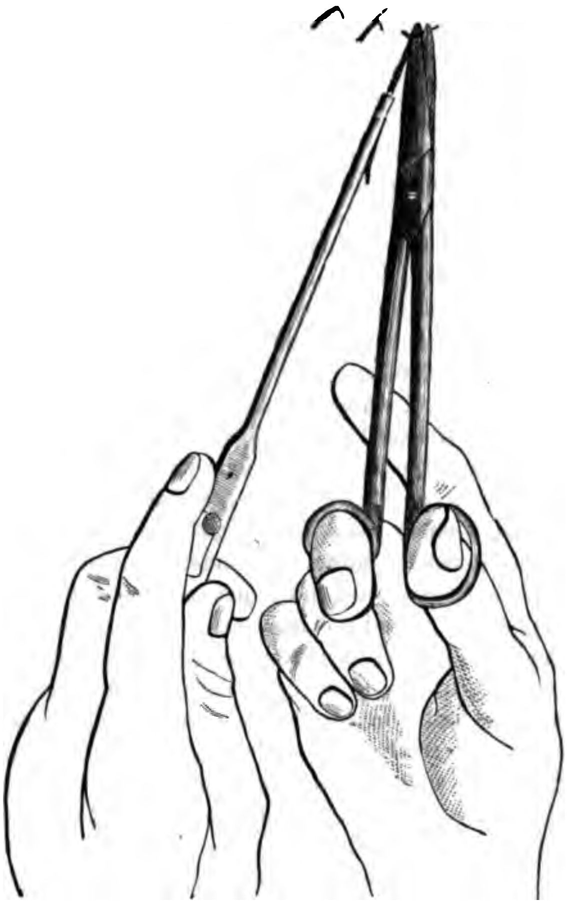


Fig. 18.

The patient must still wear the catheter for a day or two, and afterwards be habituated gradually to retain the water first for an hour, then for two hours, and then for any longer period; and you

Fig. 18 shows the manner in which Sims removes his single silver sutures. (After Sims.)

will be astonished to find how soon the bladder seems to regain its normal size and capacity.

A most important feature in the after-treatment is the constant administration of such doses of opium or morphia as shall suffice to keep the patient fully under the influence of the drug. It fulfils the three imperative indications of subduing the movements of the bladder, of locking up the bowels, and of enabling the patient to maintain for a long period the supine position which would otherwise soon become intolerable. From two to eight grains or more of opium may be given in the course of the twenty-four hours; and the success which attends the use of the agent in this case leads one to wonder that it is not adopted by surgeons in the after-treatment of all capital operations. It does not interfere in any degree with the healing process, but dispels the ennui which the sufferer, deprived of all power of action and all source of enjoyment, must always feel; and would make him forget to brood over his aches and miseries, and fill his mind instead with cheerful thoughts and bright anticipations.

There are, I believe, almost no cases of vesico-vaginal fistula which you will not succeed in curing in one, two, or more operations, by adopting such a procedure as that which I have just explained to you, and that procedure will, no doubt, betimes come to be simplified and improved. This is truly an astonishing degree of success to have attained in the treatment of an ailment, which till lately was looked upon so hopelessly; and if you inquire into the cause of the advance so rapidly made, I believe you will find it, as I have already said, to be owing mainly to the use of the metallic sutures. Dr. Sims, indeed, to whom, as you know, is due the merit of resuscitating this improvement at the present time, has declared the application of silver sutures to the cure of vesico-vaginal fistulæ and other wounds, to be the greatest triumph of surgery in the present century, and has pronounced all such discoveries as the use of anæsthetics to be but frivolous in comparison! Dr. Sims further modified and improved the operation as far as regards the position of the patient, and the use of the catheter afterwards; and he and others have claimed for America and American obstetricians and surgeons, nearly all the honour of the success which attends the performance of the operation. But in the *Lancet* of November 29, 1834, you will find an account of an operation performed and recorded by Mr. Gossett, formerly surgeon to Newgate, London, and who, I believe, is now dead, resembling in almost every detail the operation as now carried out by Dr. Sims. The fistula resulted from an operation undertaken for the removal of a vesical calculus; and the case has been always overlooked, probably from the circumstance, that it is entered in the index as a case of "calculus in the bladder." I take the liberty of reading to you from page 346 of vol. i. of the *Lancet* for 1834-35, Mr. Gossett's description of the proceeding which he adopted to cure his patient of vesico-vaginal fistula by the "gilt-wire suture." "Having placed her on a firm table of convenient height, covered with a folded blanket, and resting on her elbows and knees, the external parts being separated as much as possible by a couple of assistants, so as to bring the fistula, which was immediately above the neck of the bladder, into view, I seized the upper part of the thickened edge of the bladder, which surrounded the opening, with a hook, and proceeded with a spear-shaped knife to remove an elliptical portion, which included the whole of the callous lip surrounding the fistula, the long axis of the ellipsis being transverse. This was readily effected; but, in consequence of the very contracted state of the parts, the next steps of the operation were with difficulty executed; and I should not have succeeded in passing the sutures, had I not used needles very much curved, and a needle-holder which I could disengage at pleasure, the needles being withdrawn with a pair of dissecting forceps after the holder was removed. In this way three sutures were passed; and afterwards, by twisting the wire, the incised edges were brought into contact, and retained in complete apposition until they had firmly united. One of the sutures was removed at the end of nine days, the second at the end of twelve days, and the third was allowed to remain until three weeks had elapsed, before it was withdrawn. After the operation she was put to bed, and desired to lie on her face, an elastic gum catheter, having a bladder secured to its extremity for the reception of the urine, being introduced and retained by means of tapes. She had not the slightest discharge of urine through the vagina after the operation, which has completely succeeded in restoring the healthy function of the parts." Here you have the position, the wire sutures, the mode of introducing the sutures, the mode of fixing them, and the after-treatment—in short, the whole operation, in all its details, successfully carried out in England more than twenty years ago, in the very same way in which it has lately been proposed to carry it out in America. And it is quite clear, from what follows, that Gossett was perfectly well aware of the advantages which sutures of wire possessed over those of thread. "The advantages of the gilt-wire suture," says he, "are these: It excites but little irritation, and does not appear to induce ulceration with the same rapidity as silk, or any other material with which I am acquainted; indeed, it has scarcely any effect of the kind, except when the parts brought together are put much upon the stretch; you can, therefore, keep the edges of a wound in close contact for an indefinite length of time, by which the chance of union is greatly increased. I have used it now in very many operations, as after extirpation of the breast, tumours of various kinds, and for bringing the lips together after the removal of a cancerous growth, in all of which cases it answered extremely well. In the larger operations above mentioned, I do not, however, particularly recommend it, as there is more difficulty in applying it than the common suture. It is in minute and delicate operations, such as harelip, staphyloraphy, and for the closure of fistulous openings, where success mainly depends upon a speedy union of the parts, that the advantages of the gilt-wire suture are most manifest." This is certainly a most extraordinary forestalling of all that is now being done and said in the matter of metallic sutures.

To give you an idea of the pride, the just pride, with which our American brethren talk of their achievements in this department of Obstetric Surgery, let me read to you, in conclusion, what Dr. Francis, the learned and respected father of medicine in New York, has publicly said with regard to vesico-vaginal fistula, and the application of silver sutures for its cure by Dr. Sims. "Prior to the discovery, surgery could do nothing for this formidable class of affections. In Germany, Dieffenbach, Jaeger, Wutzer, and others, had exhausted all their resources in vain. Prolific Germany seems in this instance, to have been barren. In France, Desault, Dupuytren, Lallemand; and more recently, Jobert, Vidal, and their contemporaries, had been equally unsuccessful, although Jobert claims a success that has never been demonstrated; and I fear that this eminent man, like the late Lisfranc, had scarcely that devotion to practical results which the written annals of medical science demand from all who give publicity to their cogitations and the issues of their practice. In England, their greatest men, their Coopers, their Abernethys, their Lawrences, their Guthries, could do nothing. Nor have I learned that there has emanated from that practical school of medical and surgical learning, which sheds so much glory over Ireland, a single practical idea that can be truly said to have favoured this improvement;" and then he goes on to speak of the shortcomings of Scotland, and in terms too flattering for me to read here, he speaks of myself, as if in this matter I represented Scotland; averring that here, too, nothing had been done to promote the cure of vesico-vaginal fistula. But, perhaps, Dr. Francis may be induced to recall this observation when he comes to know the advantages which the iron-thread sutures, the hollow needle, and the splint of wire, present in facilitating the performance of the operation, and in insuring for it a successful result.

[In his later operations Sir James dispensed with the use of the splint, and closed the fistula simply by means of the metallic sutures, as shown in the woodcuts on the opposite page, which illustrate the successive steps of the operation. In the different sketches the patient is supposed to be lying prone, and the vaginal portion of the uterus is represented at the upper part of the figure, and the urethral orifice at the lower. Fig. I. shows the paring of the edges by transfixing them with the knife. In Fig. II. the edges are seen after they have been pared, and the wires are being passed through the sides by means of the tubular needle. Fig. III. illustrates his manner of securing the stitches by a simple knot, instead of twisting the ends together. When a single knot is thrown on the wire with the fingers, as in the stitch to the left of the woodcut, it is easily fixed by bringing the ends of the wire together, as in the stitch to the right. Fig. IV. shows the wound closed by four stitches; and from Fig. V. it will be seen that instead of cutting off the ends of the wires, he tied them together in a knot and left them projecting from the vulva, so that, when the speculum was introduced eight or nine days afterwards, the individual stitches could be easily seized with the fingers, and removed after the loop was clipped through, without recourse being had to the use of a pair of forceps.—A. R. S.]

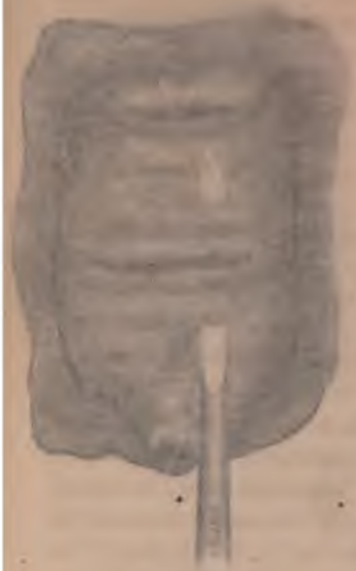


FIG. I.

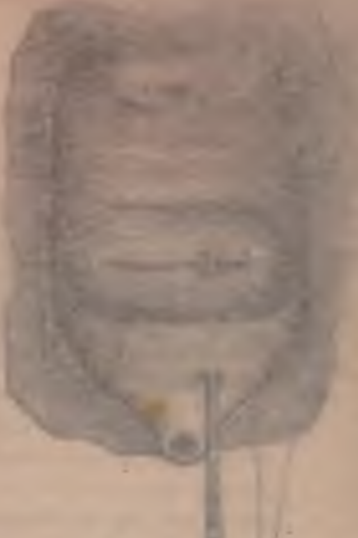


FIG. II.

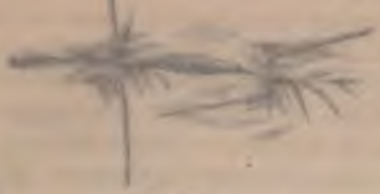


FIG. III.

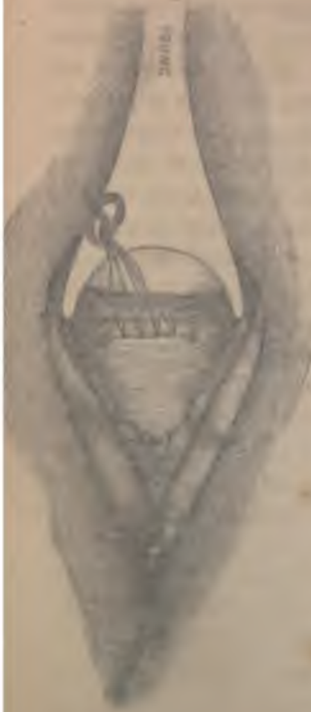
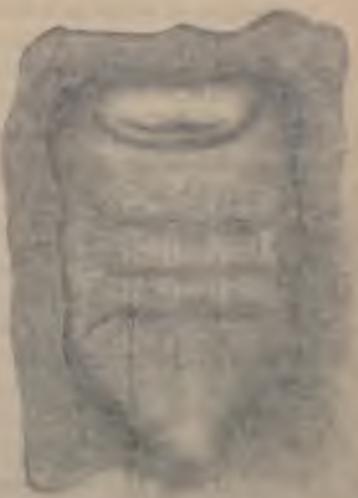


FIG. V.



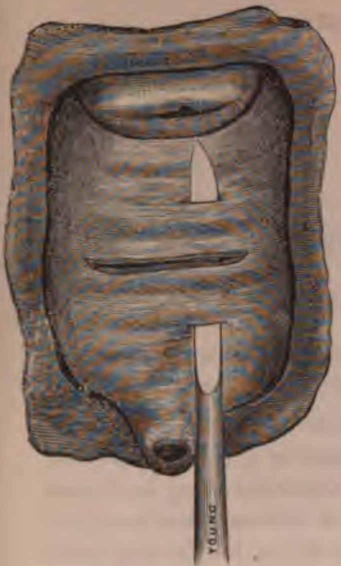


FIG. I.

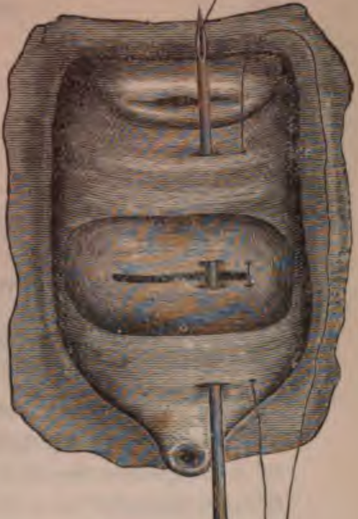


FIG. II

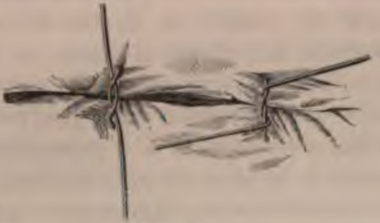


FIG. III

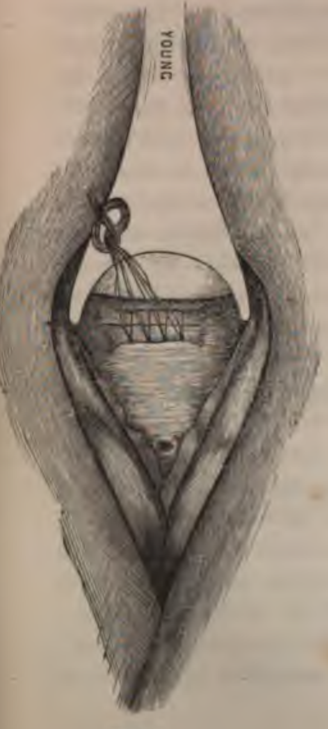


FIG. V.

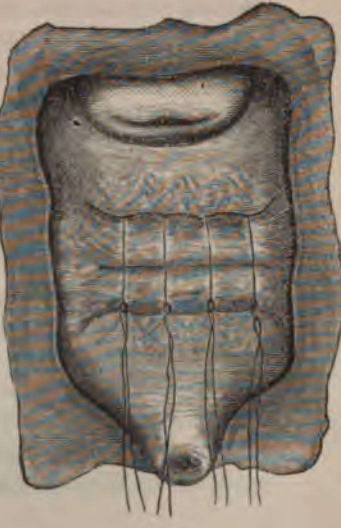


FIG. IV.

LECTURE IV.

ON PELVIC CELLULITIS.

Synonyms—Peri-uterine cellulitis (Thomas)—Inflammation of the Appendages of the Uterus (Doherty)—Parametritis (Virchow)—Phlegmon péri-utérin (Nonat).

I INTEND to direct your attention to-day to a malady which presents to us the following peculiarities in its history—viz. 1st,—It is a disease of great importance, and, as all now acknowledge, it is by no means unfrequent in practice; 2d,—It is an affection which it is in general not at all difficult to detect; yet 3d,—It is not described, as far as I am aware, in any English systematic work on midwifery or the diseases of females, published earlier than twenty years ago; and 4th—Though thus neglected and overlooked by our fathers and their predecessors, it is an affection a full and distinct account of which has been left us in the writings of various old Greek and Roman physicians. "Probably," observed Aristotle upwards of 2000 years ago, "probably all art and all wisdom have often been already fully explored, and again quite forgotten." The remark at all events strongly applies to many facts in medicine, and among other things to the disease in question. One of the first modern accounts of the disease I refer to was published in France by Marchal de Calvi, in 1844, under the title of an essay on *Intra-pelvic Phlegmonous Abscesses.* This essay was reviewed at the time in the old *Medico-Chirurgical Review.* In the very number of the *Medico-Chirurgical Review* in which the essay of M. Marchal de Calvi is reviewed, and most highly praised and recommended, the reviewer takes occasion, *apropos* of the publication by the Sydenham Society of Dr. Adams' admirable translation of Paulus Ægineta, to sneer at the medical knowledge of the ancient physicians, and to reprobate in no measured terms the study of the ancient authors. But in that translation of Paulus Ægineta which the reviewer thus affects to despise, there is a very concise and lucid account of the disease, for a treatise on which M. Marchal de Calvi receives so much praise. Various diseases well known to the ancients, and fully described in their writings, have been lost from sight and observation for many ages; so that, when detected again in our day, they appear in the light of entirely new discoveries. In the time of the Emperor Trajan there was a physician in very extensive practice in Rome, of the name of Archigenes, who, equally with Agathinus, has been regarded as the head of the Eclectic School. Juvenal makes frequent reference to Archigenes, and describes him going about visiting his patients attended by fifty pupils, each feeling every patient's pulse by turns. This same Archigenes left a great many writings. Among the fragments of his writings that have been preserved, one relates to the disease I wish to speak of. If I can lay hold of the account of it which is quoted from him by Ætius, I may perhaps read it to you, in order to show you how much he knew both of the course and treatment of the disease. . . . .

Professor Doherty of Galway, and Professor Churchill of Dublin, were the first modern English authors who called the attention of the profession to the frequency and importance of the disease I allude to; the former describing it as "chronic inflammation of the appendages of the uterus after parturition;" and the latter, as "abscess of the uterine appendages." In some observations on uterine diseases published in 1843, after giving some details of two cases of the disease in the puerperal female, I added that "I had seen several cases in the female of chronic 'pelvic inflammatory tumours' unconnected with the puerperal state; and where the fixed condition of the body of the uterus, the surrounding tumefaction, and the apparent almost ebony induration produced in the roof of the vagina at one stage of the disease, by the tenseness and distension of the pelvic fascia, gave rise to the idea that the affection was organic and carcinomatous, and not simply inflammatory." We all now know the disease to be far from rare, even in the non-puerperal female; and I have usually here lectured upon it under the name of Pelvic Cellulitis, a name which I venture to suggest in consequence of its pathological seat and nature.

We have had two instances of this disease in the wards lately, and one of the patients is still under observation. Before discussing the subject of Pelvic Cellulitis more at length, you will allow me to read to you the history of these two cases from Mr. Sclanders' report.[1]

Case I.—"C. R., admitted Feb. 12, 1859, aged 30, married twelve years. Was very healthy before her marriage; menstruates regularly. Has given birth to six children, and had one miscarriage, which occurred between the fifth and sixth labours. She has had rapid recoveries from all her previous labours, and has been attended by accoucheurs. She had a midwife with her in her last confinement, which occurred two months ago. Had a very short labour, lasting only from 6 A.M. to 9.30 A.M., at which time the placenta was expelled naturally. She remained very well during the first week, and was rapidly recovering; but at the end of the week she had rigors, which have continued at times up till now. She then noticed, for the first time, pain in the right iliac region, and great tenderness on pressure, which was succeeded, on the fifth week after delivery, by a swelling in the part first affected by pain. This swelling was tense, hard, and circumscribed. Mustard poultices were first applied, and then leeches, and she experienced great relief, although the abdominal swelling remained as painful as ever. The rigors were followed by profuse perspirations whenever they occurred. The pulse rose rapidly from the first symptoms; appetite was much impaired; great thirst, and feeling of weakness and depression.

---

[1] This part has not been altered since the time the lecture was first delivered.

"On admission, there is a hard swelling in the right iliac region, extending to within a short distance of the mesial line. The space occupied by this hardness is dull on percussion and tender on pressure; and, when the finger is introduced into the vagina, the internal surface of the swelling may be readily felt—it seems to be uneven and very sensitive. Much feebleness; tongue dry and coated with a whitish fur; lips dry and fissured; expression anxious; respiration natural; pulse 98; urine of natural colour and quantity; bowels regular.

"℞. Hydrarg. bichlorid. gr. i., aquæ ℥ii.; a teaspoonful to be taken three times a-day. To have a blister produced by nitrate of silver.

Feb. 18*th*.—The tenderness is much lessened; but the swelling remains of the same size and shape.

"19*th*.—Complains of sickness, and pain in the epigastrium. To have—℞. Bismuthi albi ʒss., mucilaginis ℥i., aq. fontis ℥v.; a tablespoonful three times a-day.

"23*d*.—The sickness and pain have disappeared. The abdominal swelling is lessened, and the patient has not had any rigors since last report. To take Ferri et Quiniæ citratis gr. iii., in pill form, thrice a-day.

"*March* 2.—There is much hardness and tenderness in the region of Poupart's ligament on the right side. She cannot extend the right thigh in consequence of the excessive pain; the inguinal glands are enlarged and indurated. To have another vesication with nitrate of silver, and to take Syr. ferri iodidi ♏xx. ter in die.

"3*d*.—There is a purulent discharge from the vagina, noticed principally when the patient empties the bladder. The pain over Poupart's ligament is much better.

"9*th*.—The purulent discharge still continues, but in diminished quantity. To have unguent. bismuthi applied to the vesicated surface on the groin."

CASE II.—"S. N., aged 21, admitted March 24, 1859. States that she has always enjoyed good health up to the date of the present attack. Menstruates regularly; occasionally observed her feet swell towards night, but attributed it to her running up and down stairs so much. She attributes her present illness to having caught cold after menstruating, about three weeks ago, at which time also she suffered from diarrhœa. This diarrhœa continued for several days, after which she was seized with pain in the lower part of the stomach, back, and left iliac region. This pain, which has continued up to the time of her admission, is not constant, but more severe generally at night. She describes it as shooting round from the left to the right side, and down the left thigh as far as the knee.

Pain and tenderness over the lower part of the abdomen. On examination per vaginam, a tumour is felt projecting from the left side, in the situation of the broad ligament of that side, of the size of an egg, hard and firm. Ordered two leeches to be applied round the anus, and Pil. hydrarg. gr. iii.; mitte tales xii. One every four hours, and a starch and opium injection. Fomentations to be applied to the lower part of the abdomen.

"*April* 3.—Ordered—℞. Potass. iodidi ʒss., syrupi simplicis ℥i., aquam fontis ad. ℥viii. A tablespoonful thrice daily; diet to be light; chicken soup.

"*12th*.—Patient complains of palpitation, with severe pain in back. Pulse 104. Ordered—pulv. digitalis gr. vi., potassæ bitart. ʒv., pulv. cinamon. comp. gr. xx. Fiant pulv. vi. One twice a-day.

"*13th*.—Pain in the left side worse to-day. The tumour is felt to be increased in size. Ordered to use mercurial pessaries, and tincture of iodine to be painted externally on the lower part of the abdomen.

"*17th*.—Ordered—℞. Ol. crotonis ʒiss., ol. olivæ ℥i. Fiat linimentum. To be applied every night.

"*18th*.—To-day she has been unwell; very slight discharge. ℞. Acidi hydrocyanici dil. ʒss., tinc. hyoscyami ʒss., mist. camphor. ℥viiss., tinct. cardam. comp. ℥ss. M. Signa. A tablespoonful thrice daily.

"*20th*.—As the discharge still continues scanty, ordered leeches to be applied round the anus.

"*23d*.—Catamenia ceased; to return to mixture prescribed April 3d, and continue the croton liniment.

"*25th*.—Complains of great pain in the right side, much more than is usual; very restless, and does not sleep.

"*29th*.—Much better to-day—is going about the ward.

"*May* 7.—Continues to improve. The tumour, on examination, is lessened considerably. Ordered emplast. lyttæ 4 by 4, to be applied over the left side.

"*15th*.—Complained of return of pains, very severe to-day. To have tincture of iodine painted externally.

"*25th*.—Ordered—℞. Quiniæ sulphat. gr. xii., acid. sulph. dil. ♏xl., aquam ad ℥viii. A tablespoonful thrice daily.

"*29th*.—Ordered—℞. Tinct. hyoscy. eth. chlorici āā ʒss., mist. camph. ℥ss., aquæ ℥i. Fiat haustus nocte sumendus, as patient complains of great pain, and has not slept for two nights.

"*30th*.—Much better to-day. Ordered—℞. Hydrarg. iodidi gr. vi., pil. galbani gr. xl. Divide in pil. xii. Sig. One twice a-day."

NOMENCLATURE OF THE DISEASE.

The disease of which you have had an opportunity of studying the phenomena in the patients whose history I have now read to you, has been known under different names, which may be apt to cause you some perplexity in attempting to get at the literature of it. Some of these names I have already stated to you. It was generally described by the ancient writers as "abscess of the uterus;" it has very often been described by modern writers as "pelvic abscess;" but the designation is an incorrect one, for pelvic cellulitis is no more pelvic abscess, than pleuritis is empyema. In the one case as in the other, the inflammatory process which is the primary and original disease, may pass on to its highest grades and lead to the development of pus. In pleurisy, if the inflammation be not checked in time and the membrane be not restored to its normal state, pus comes at length to be secreted into the pleural cavity, and the pleurisy merges into empyema. So in the case of inflammation of the different portions of cellular tissue contained within the pelvis, or, in other words, in *Pelvic Cellulitis*, you will find that usually it only merges into "pelvic abscess" when no attempt has been made to subdue the inflammation, or when even well-directed treatment has failed to prevent it from ending in suppuration. In the girl, who is still in the ward, there was at one period in the history of her disease a large inflammatory swelling or effusion in the left broad ligament, which was dispersed and disappeared. Since then a similar swelling, or inflammatory effusion, has, as you have been told, become developed between the rectum and the vagina, but instead of ending in resolution as before, the inflammation now proves less amenable to treatment, and threatens to end in suppuration, and to lead to the development of a pelvic abscess.

Again, descriptions of inflammation of the cellular tissue of the pelvis have been overlooked among the accounts of the other inflammations occurring simultaneously with it as the results of unfavourable confinements, or they have been lost among the notices of other sequelæ of unfortunate operations performed on the pelvic organs. You will find cases on record, under the names of "psoas abscess" after delivery, "iliac abscess," etc. We meet the disease most frequently, perhaps, in the case of puerperal patients,[1] who have been subject to injurious influences; but it occurs also frequently, as I have already mentioned to you, in non-puerperal patients as well, as we see in the case of the girl in the ward, in whom the disease seems to have been caused by exposure to cold during a menstrual period. It may result from any operations in the pelvis, or injury of the pelvic organs, or even from so simple a thing as the use of caustic to the cervix, or the introduction of a tangle-tent. It may occur in patients of all ages and at all times of life. I have seen it in young female children; and I have attended patients attacked with it when upwards of seventy. It is a disease not confined to women, although most frequently seen and recognised in them. Cases of pelvic cellulitis and abscess occur not unfrequently in the male sex from cold, after operations on the urethra, rectum, etc.

---

[1] M'Clintock, in his *Clinical Memoirs on the Diseases of Women*, says that out of sixty-one cases of puerperal pelvic cellulitis, twenty-eight, or nearly one-half, were primiparæ, while the proportion of primiparæ to multiparæ in the Rotunda Lying-in Hospital was only one-third.

PATHOLOGICAL ANATOMY.

The disease consists essentially and primarily of inflammation of the cellular tissue of the pelvis, and to understand aright its nature and its course, and to be able to construct a proper plan of diagnosis and treatment, we must study—

1. *The Seat of the Inflammation.*—The pelvis, as you know, is lined and closed in inferiorly by means of a fascia, which gives off sheaths to the different pelvic muscles, and furnishes processes for the protection, support, and separation of the various pelvic organs. Wherever two layers of this fascia approach each other after covering the opposite surfaces of any organ or muscle, and wherever two layers covering contiguous organs come to be in opposition, you will find that there is always a greater or less quantity of loose cellular tissue interposed between them. Thus between the layers of the broad ligaments, between the vagina and the rectum, between the iliac muscle and the bone, and in short, in almost every part of the pelvis, there is an abundance—a great abundance—of cellular tissue; and, I repeat, the disease of which I have now to speak consists of inflammation, acute or subacute, of this abounding cellular tissue.

2. *The Products and Terminations of this Inflammation* vary according to the stage of the disease, and may be considered under the four following divisions:—

1st. Serum.
2d. Pus.
3d. Coagulable Lymph.
4th. Sloughing of the Cellular Tissue.

1st. *Effusion of Serum* is the first phenomenon that occurs when inflammation has become established in the cellular tissue of the pelvis. The necessary result of the effusion of this fluid is a fulness in the part, which may be felt on examination through the vagina or rectum, or even through the abdominal parietes, according to its special seat. This fulness is of greater or less extent according to the intensity of the inflammation, and according to the freedom with which the fluid is allowed to escape along the cellular tissue, and to pass from one loculament or division of pelvic fascia to another. The swelling or tumour produced by the effused serum is from the first firm, dense, and resistant to the feel, and sometimes becomes very hard, particularly when the effusion takes place between two layers of the fascia which are not loose, and mobile, and yielding, but are bound at their margins to some osseous ridge or strong ligamentous band; as when it occurs, for example, in the wall of the pelvis, externally to the margin of the broad ligament of the uterus. In such a situation the swelling comes sometimes to feel hard as a cricket-ball, or a "deal board," as Dr. Doherty has expressed it, and has been, and might easily be, as far as mere hardness is concerned, mistaken for an exostosis of the ilium; and when in the roof of the vagina it sometimes feels as firm to the touch as a scirrhous growth. One other common and very characteristic feature of the tumour is this—it feels as if it were *adfixed* to and grew, as it were, from the side of the pelvic bones, whenever the effusion has extended to a sufficient extent laterally, so as to reach the walls of the pelvis. Fibroid tumours of the uterus, ovarian tumours, and others with which the "inflammatory tumour" of pelvic cellulitis are sometimes confounded, do not present this symptom. After the effusion has invaded loculament after loculament of the pelvic fascia, it soon loses its primary round or oblong form. In examining the swelling day after day, you can sometimes find it daily altering its figure, and occasionally you can thus trace its gradual process, as it creeps from one side of the pelvis to the other, and passes before or behind the neck of the uterus, and at last involves and *fixes* the uterus in its mass. The inflammatory effusion is by no means always limited to the cellular tissue of the lower or true pelvis. Often from the first a large swelling or effusion can be felt in one or other iliac region; and I have seen one or two cases where the tumour was in a great degree central, and as large as the uterus at the fourth month. Occasionally the disease invades the cellular tissue of the upper or large pelvis, and especially the cellular tissue in the right iliac fossa, and around the head of the cæcum, without even stretching downwards into the true pelvis. Again, we see occasionally in practice smaller inflammatory swellings and effusions limited to single loculaments of the pelvic cellular tissue situated in the anterior or on the posterior walls of the vagina, and not even passing upwards to the cellular tissue contained between the broad ligaments and lying around the neck of the uterus.

I should wish particularly to have it impressed upon your minds, in regard to this disease, that there is no pus in the effusion or tumour at first, and that it does not begin in any case by being an abscess, but that, first of all, an effusion of serum takes place into the inflamed cellular tissue, and no formation of pus generally occurs till about ten or fourteen days afterwards. In one of the first cases of the disease I ever saw, and when I was only beginning to learn something of its nature and course, I got a lesson in regard to this matter which is very strongly impressed upon my mind. Dr. Andrews, who was then a lecturer on Midwifery in London, was on a visit to Edinburgh at the time, and I offered to show him a case of pelvic cellulitis as an object of interest; for the subject was then new, and not many cases of the disease had been observed. The patient was a young girl, of twelve or thirteen years of age, in whom I had made sure that inflammation had been set up in the broad ligament of the uterus, and caused great swelling and induration of it. This I supposed to be due to an effusion of pus, for we then spoke of and thought of the disease as always "pelvic abscess" —and about the tenth day from the commencement of the disease I introduced, in presence of Dr. Andrews, an exploring needle, with the view of bringing away the pus and reducing the swelling. But, to our astonishment, there flowed into the dish held to receive it, not yellow pus, but a transparent fluid so clear and limpid, that Dr. Andrews at once whispered to me, "Have you not punctured the bladder?" I knew from the direction of the needle backwards that it was not near the bladder, and after a considerable quantity of this clear fluid had escaped, we soon had evidence that it was not urine, by its rapid coagulation in the cup which contained it. It was serum, such as you see in the stages of many inflammations, and such as you may obtain from the skin after the application of a vesicant; and in the earlier stages of pelvic cellulitis it is this inflammatory serum whose effusion gives rise to the swelling and hardness, and which is the only fluid you will then procure on using an exploring needle. If the inflammation be not now subdued, and the effused serum be not absorbed, it will betimes lead to

2d. *The Formation of Pus.*—You may meet with a case of pelvic cellulitis where there is an effusion of serum attended with much pain and distress; yet if the disease proceed no farther, and resolution of the process be effected, the disease might run its course, and its real nature might be altogether unsuspected, unless you had previously been made aware of the probability of its occurrence. But if the inflammatory process remains unchecked, and goes on to its higher stage of suppuration, the disease is not so likely to be overlooked; and hence most of the descriptions that we have of the disease refer to it only in this more advanced stage. The pus may become developed in any part of the pelvis where inflammation has been set up, and in some cases it is confined to one fascial loculament, while in others it occurs in two or more simultaneously. It does not always remain in the part where first it is formed, but forces its way from one loculament to another, until it reaches a cutaneous or mucous surface through which it may be evacuated. Its progress is often very difficult to trace, and to understand it aright requires an intimate knowledge of the course and connection of the fascial sheaths of the pelvic organs. Perhaps the most common seat for the development of an abscess is in the cellular tissue of one or other of the broad ligaments of the uterus, and when matter has been formed there it may make its way towards the roof of the vagina either by passing in front of the neck of the uterus between it and the bladder, or — as is far more frequently the case — by sinking backwards between the cervix uteri and the rectum. In such a case the abscess may open either into the rectum or into the vagina, which are the two most common canals for the evacuation of pelvic abscesses when these open internally, and, fortunately also, the two most favourable. But there are two other cavities into which the matter sometimes, but less frequently, finds its way; and as they are not by any means so accessible, the treatment of the case becomes more complicated and difficult. These are the cavities of the bladder, and of the body or cervix of the uterus: and when one and the same abscess opens into both of these organs—as sometimes happens—a form of vesico-uterine fistula results, which is not always very amenable to treatment. On the other hand, you will often find the matter burrowing outwards, and finally making an opening for itself in some part of the cutaneous surface of the body. The pus may pass, for example, underneath the pelvic fascia, and escaping from the pelvis along with the femoral vessels, it may come to point somewhere in the groin; or it may pass backwards through the great sacro-sciatic notch along with the sciatic nerve, and lead to the formation of an abscess in the hip, as I lately saw in a case which I visited along with Dr. Moir. Again, the matter in some cases sinks downwards, and escapes at some point in the pelvic outlet.

One interesting point which it is of importance to observe and to remember in connection with the evacuation of pelvic abscesses, is the extreme rarity with which they become discharged into the cavity of the peritoneum. When we know that inflammation has been going on around some of the pelvic organs, and has led to the formation of pus beneath the peritoneum, we might be apt to form a very unfavourable prognosis, and to look upon a fatal peritonitis as almost certain to ensue. But experience of such cases assuredly does not warrant us in entertaining such a gloomy view, for this reason, that abscesses forming under the peritoneum very rarely perforate it, and open into its cavity. Why this is so, is not very easy of explanation. Cruveilhier avers that it is because the peritoneum is lined and protected by a layer of fascia, the existence of which is denied by others. In some cases adhesive peritonitis is set up, and the abscess is prevented from bursting into the peritoneal cavity by the resistance offered to it by the two adherent layers of the membrane. But, whatever be the explanation of it, the fact is not the less true, and it is always a hopeful one to be borne in mind—that the peritoneum has a very remarkable power of resistance to the passage of matter, and that, in consequence, pelvic abscesses very rarely terminate by evacuation into its cavity. I shall have to revert again to this point when I come to speak of the artificial evacuation of the pus; and I pass on now to notice another product of inflammation in the cellular tissue of the pelvis, viz.—

3d. *Coagulable Lymph.*—When an effusion of firm, solid, coagulable lymph or fibrine takes place into one or more of the fascial loculaments in the course of the disease, the swelling which results is extremely dense—really as hard as the "deal board" of Dr. Doherty—and many long months usually elapse before it softens, breaks down, and is discharged. I have a patient under my care just now in whom suppuration has set in after an attack of pelvic cellulitis, which came on when she was at the country, so that there is now formed an abscess in the right iliac fossa. But fourteen years ago she had an attack of the disease, which came on after a confinement, and took on the form I now refer to. On that occasion there was an effusion of coagulable lymph into the cellular tissue around the cervix uteri, forming an extremely dense solid tumour, like a hard cancerous growth or deposit in the roof of the vagina. Nearly two years elapsed before this effusion was fully absorbed. When pelvic cellulitis terminates in effusion of coagulable lymph, the swelling is always very long in disappearing.

4th. *Sloughing of the Cellular Tissue* of the pelvis sometimes occurs as a result of inflammation in it. It is produced by the compression of the vessels caused by the effusion of lymph or serum into the surrounding tissue. The parts, deprived of their usual supply of nutritive matter, die, and being separated by a suppurative process from the surrounding textures, they come to lie in the midst of a fetid abscess, and a cure in such a case cannot be accomplished till a free opening is made, and these necrosed masses are evacuated, along with the pus in which they are imbedded. I have seen cases where very large sloughs thus escaped, or were removed rather by the finger passed through the artificial opening. These cases are always most severe and exhausting in their character, and usually long also in their duration.

Having thus given you a hurried sketch of the history of Pelvic Cellulitis and of its Pathology, I must now tell you something of

THE SYMPTOMS AND DIAGNOSIS OF THE DISEASE.

You will find that the symptoms of pelvic cellulitis differ according as you meet with the disease at a period before suppuration has begun, or after it has become established. They are, therefore, divisible into two groups, which must be considered separately.

A. Before Suppuration has begun.

1. *Inflammatory Fever.*—In its earliest stages the disease is marked by fever of greater or less intensity, which is usually ushered in by rigors, more especially in puerperal females, in whom it sometimes occurs as one of the forms or complications of puerperal fever. It occasionally happens, however, in puerperal cases, that the disease begins very insidiously, and without almost any of the symptoms described as characteristic of the disease. Hence the necessity for very careful exploration of the pelvis in every patient presenting anomalous symptoms after delivery. In non-puerperal patients the fever is usually of a highly inflammatory type—the strong rapid pulse, the hot skin, the furred tongue, and all the ordinary constitutional phenomena of a well-marked synocha being present. Along with these general febrile symptoms you have various local symptoms, such as

2. *Pains in the Pelvis.*—These pelvic pains are experienced more especially in those organs beside or around which the inflammation has been set up, and they are due to the pressure exerted on the particular organ by the matter effused in its vicinity. One of the most common symptoms of the occurrence of pelvic cellulitis is dysuria, from the pressure of the inflammatory tumour on the bladder or on its neck; and whenever you find a patient labouring

under a smart fever, and complaining of frequent desire for micturition, and pain in passing water, it will be your duty at once to ascertain if the symptoms be not due to a commencing attack of pelvic cellulitis. Or, again, the patient may suffer from pain in defæcation, when the inflammation is set up in the cellular tissue around the rectum, and leads to the effusion of fluids there, as has happened in the case of one of our hospital patients. You have then symptoms of distress in the bladder and rectum when these organs are emptied, accompanied and generally preceded, by a constant throbbing pain in some part or other of the pelvis; and if these are attended with a marked degree of fever and constitutional disturbance, you may be pretty certain that pelvic cellulitis has set in. But you can only make yourself perfectly certain of the fact by instituting a physical examination, and ascertaining the existence of a

3. *Tumour in the Pelvis.*—This is to be felt by examining with the forefinger of the right hand through the vagina or the rectum, palpation or pressure being exercised at the same time with the fingers of the left hand over the inlet of the pelvis. On making an exploration in this manner you can detect a swelling, usually at first more or less oblong or rounded in form, but sometimes modified by the form and density of the fascial layers which invest and limit it. Commonly it is firm and hard, but exquisitely tender to the touch, and it rapidly increases in size and density. If the disease be checked at this stage, such a tumour may be resolved, and all the attendant symptoms may gradually subside and disappear; and this is what actually occurs in perhaps about a half, or indeed more, of all the cases of pelvic cellulitis. But in the remainder the disease is of longer continuance, and leads to further changes, chiefly from the development of pus in the part; and as these are the cases which often come alone under our care, and which remain longest under treatment, it becomes a matter of importance to know how to recognise the disease

B. AFTER SUPPURATION HAS BEEN ESTABLISHED.

When the disease has reached this stage you have still fever, pain, and intumescence, but all more or less altered in character. Pains that had for a time subsided may now return. Thus it not unfrequently happens that the dysuria which marked the onset of the disease disappears for a time when the bladder has become accustomed to the pressure of the inflammatory tumour, but recurs when suppuration is set up. Or the patient may begin to experience pain in other parts where formerly none was felt; and cases of pelvic cellulitis have sometimes come to be treated as cases of sciatica of an aggravated type from the pressure of the pus on the sciatic nerve, as it makes its way along it through the great sciatic notch, or from implication of the nerve in the inflammatory process. There is a state of the limbs on the side principally attacked which is not common, but still highly worthy of your remembrance. When the inflammatory effusion is located principally or solely in the cellular tissue of one of the iliac fossæ, and around the muscles there passing downwards to the thigh, the lower extremity on that side occasionally becomes drawn up, and cannot, without extreme suffering,—or, indeed, cannot at all,—be retracted and extended. I have seen this symptom principally in cases of puerperal pelvic cellulitis. The tumour, too, is changed, and instead of being hard and brawny, it assumes betimes, and first in one or more central points, the fluctuating feeling of a fluid collection. In addition to the changes which occur in the pre-existing symptoms, however, some entirely new symptoms develop themselves and demand our notice. Such is

4. *Hectic Fever.*—Instead of the constantly high and bounding pulse and the equally elevated temperature of the skin characteristic of continued inflammatory fever, you will find the patient becoming subject to remissions and exacerbations of the fever. Hectic fever is established, and I have seen more than one case of the disease being actually mistaken for phthisis. The pulse becomes weaker and softer, though still rapid; the patient has occasional slight rigors, and the fever becomes more intense in the evenings. The skin is still generally hot, but it becomes cold at times, and at other times it is covered with profuse perspiration, more particularly when the patient sleeps. She is gradually and occasionally rapidly reduced in strength, and comes to present an appearance which it is not easy to describe, but which is almost pathognomonic of the establishment of suppuration. You will find Mr. Travers telling of Sir Astley Cooper, that he was called on one occasion to see a patient in the country, and whenever he went into the room and looked at the patient he at once put the question to the medical attendants, "Where is the matter?" It had not before been suspected that suppuration had occurred, but on more careful examination the fascial diagnosis so promptly made was fully confirmed, for, under the pectoral muscle

a large abscess was discovered, which Sir Astley at once evacuated, and so cured the patient. It is difficult, I say, to describe in so many words the expression of countenance assumed by patients who are suffering from collections of pus in any parts of the body; but you must go and observe it for yourselves in the wards of the hospitals, and when once you have learned to recognise it, you will find it to be a sign of great value in enabling you to form a just conclusion as to the nature of many an otherwise obscure or doubtful case. Then, in endeavouring to make up your mind as to the presence of pus in a case of pelvic cellulitis, you will sometimes be enabled to come to a determination on this point, by taking into consideration the length of time during which the inflammation has existed. For, if inflammation have been going on in the cellular tissue of the pelvis for three or four weeks, and little, or indeed no abatement has taken place in the severity of the symptoms, but only such changes as I have been attempting to point out, you may be almost certain that by that time the inflammatory process has reached such a stage as to have led to the development of pus. That such is in reality the case, however, you can become absolutely certain by noticing

5. *The Feeling of Fluctuation.*—The spot at which you will most frequently be able to recognise the feeling of fluctuation for the first time in most cases of pelvic cellulitis, is in the roof of the vagina immediately behind the cervix uteri, or to one side, as if where the broad ligament would open and split below if its layers were separated by accumulated fluid. From some peculiar arrangement of the layers of the pelvic fascia, when pus is formed in the course of a pelvic cellulitis, occurring in the upper half of the true cavity of the pelvis—and this, you must remember, is the most frequent seat of the disease—it has a tendency always to point in this direction and to find an exit for itself, either at the lower base of the broad ligaments, or in the posterior cul-de-sac of the vault of the vagina; and it is at these spots, where the fascial layer seems to be unusually thin and weak, that the feeling of fluctuation is ordinarily first to be detected. But in cases where the pus has been formed, but is too deeply seated to allow of your discovering its presence by the sense of touch, you must have recourse to some other means to assure yourself of its existence. The best means that you can employ with this view is

6. *The introduction of an Exploring-needle* into the centre of the tumour. This instrument, which is of invaluable service in the examination of diseases, is never used to more advantage than when

employed for the exploration of pelvic abscesses, when these happen to be unusually difficult or doubtful in their diagnosis. For in the common run of cases you will usually be perfectly able to make out the diagnosis without this assistance. In any case, however, of pelvic cellulitis where you are in doubt as to the formation of pus, and have reasons for being certain of its presence, you may make sure of it at once by pushing an exploring needle into the centre of the tumour. The instrument has, perhaps, been neglected too much as a means of diagnosis in surgery, when we consider with what freedom from danger its employment is attended, and how frequently abscesses, aneurisms, and other tumours have been confounded together, when by its use such mistakes could easily have been avoided. I know of a case where a distinguished surgeon introduced an exploring-needle into a tumour in the groin, under the belief that it was a bubo, and to prove to others present that it was so; but, to his astonishment, no pus escaped, and instead a quantity of air. It was a crural hernia, the sac of which had become inflamed, and into it he thrust the exploring-needle, and thus saved himself from committing the fatal mistake of laying open a hernial tumour with a bistoury, when he intended only to open an inflamed and suppurating gland. The use of the exploring-needle saves, I know, from many mistakes in obstetric surgery; and since the safety with which it may be introduced into the most important organs and the most malignant tumours has been abundantly demonstrated, I think its employment might be advantageously extended. The best exploring-needle is a long, slender, thread-like trocar, with a wire stilet passing through it. Of course there will be no escape of pus through it when it has been thrust into a solid tumour or into an inflammatory swelling before pus has been fully formed, and even when pus is there, it is usually only a drop or two that escapes through the narrow tube. You will not find the pus in some cases traverse the trocar, particularly if the pus is thick, but on withdrawing the trocar and blowing through it, a drop or two will escape from the end of the trocar. But when none flows out, the negative sign is itself of importance. While, on the contrary, if a drop escapes it may be a sufficient warrant for you to proceed to the more free evacuation of the purulent collection. A medical practitioner, of great ingenuity, who had been many years in India, when his health began to fail him, came home several years ago, and while spending a short time in Edinburgh, I had an opportunity of showing him some cases of pelvic cellulitis, where I succeeded in demonstrating the presence of pus by the use of the exploring-needle. Soon after going to London he met some medical men there in consultation upon an old Indian patient of his. The case, as he afterwards told me, seemed to him to present the chief characteristics of the examples of pelvic abscess which he had seen here. He expressed to the medical attendants of the lady his opinion of the case, and proposed as a means of settling the difficulty to introduce an exploring-needle into the seat of the disease. The other doctors rather scoffed at the idea; but, as they were altogether at sea as to the nature of the disease, they agreed to allow him to introduce the exploring-needle, which he accordingly did. To his great surprise and vexation, however, no escape of pus followed the withdrawal of the stilet; but, being still unconvinced that his opinion was erroneous, as a last resource he applied his mouth to the end of the tube, and succeeded, by sucking it, in extracting a few drops of pus sufficient to convince his sceptical brethren of the true nature of the case, and of the value of the exploring-needle as a means of diagnosis. He was then allowed to open the abscess, and the patient got speedily well. In consequence of his treatment of this case, my friend got rapidly into a large practice in London, but after a few years his disease unfortunately returned, and death struck him down.

When, then, you have a patient attacked with rigors, followed by a high degree of fever, and attended with pain in the interior of the pelvis, or in one of the iliac fossæ, and when, after a time, the fever changes in character, and instead of being inflammatory, presents more of a hectic type, you may be pretty certain that she has been suffering from an attack of pelvic cellulitis which has passed on to suppuration. And in every case it will be possible for you to correct or confirm your diagnosis by means of a careful local examination. One or two marked symptoms may enable you sometimes to make a good guess as to the existence of the disease. Several years ago I was attending with my friend Dr. Andrew Wood an anxious case of labour, where the lady had manifested symptoms of insanity in the last periods of pregnancy. While thus engaged, a gentleman came, bearing with him a note to me from the north of England. The note was written by the medical attendant upon the gentleman's wife, and anxiously desired me to visit the lady as soon as possible. In relation to her disease it stated only two bare facts—viz. that the lady, who had been confined six weeks before, was hectic, and was suffering from great pain in the pelvis and down one of the limbs. I read the note to Dr. Wood, saying it was, I believed, a case of pelvic abscess, against the accuracy of which diagnosis he was inclined to wager. On visiting the patient in England next day, I found a large pelvic abscess which I freely opened, and the patient made an excellent recovery.

Formerly, the changes produced by the disease caused it frequently to be confounded with cancerous, fibroid, or cystic tumours of the uterus and ovaries, or other organs of the pelvis; but now we may be almost always sure of the true nature of the case when we find the tumour associated with constitutional phenomena running a regular and rapid course, and adhering to the bone or periosteum in the remarkable manner to which I have referred. For, let me repeat, inflammatory tumours feel fixed and immovable to a degree seen in the case of no other morbid growth, and more particularly when occurring in the broad ligament—their most common seat—and lying close to the ilium, they feel so hard and adherent that they might almost be mistaken for an osseous tumour. The old stories of large ovarian and uterine tumours of a supposed nature yielding under mercury, etc., in all probability merely related to tumours formed by inflammatory effusions of the kind I have been speaking of.

Before leaving the subject of diagnosis, I wish to mention one point more that perhaps I ought to have alluded to earlier. We have already found that abscesses, the results of pelvic cellulitis, may ulcerate and discharge the pus which they contain by various channels.[1] Internally, they may thus spontaneously open—1, into the vagina; 2, into the cavity of the uterus; 3, into the rectum; 4, into some higher portion of the intestinal canal; 5, into the urinary bladder; and 6, but happily very rarely, into the cavity of the peritoneum. The same abscesses may open externally at the umbilical region, in the hypogastric or iliac region, or they may burrow downwards and open at the top of the thigh, or pass through the posterior pelvic nitches and open on the ilium or sacral region behind. I have seen once or twice the thin plate of the ala of the ilium apparently perforated by them. Their spontaneous opening in any of the internal mucous canals which I have named, is ascertained by watching diligently for, and tracing the escape of, pus from these several canals. But I am anxious to impress upon you an additional fact. When an abscess is formed in the cellular tissue of the pelvis, it may discharge itself through more than one opening, and in more than one direction; I have known abscesses thus open in the same person simultaneously or consecutively both on the cutaneous surface of the abdomen and into the bowel; both into the bowel and bladder; both into the rectum and vagina, etc. I have seen cases where in this way fistulæ have been established between the different points which I have named, and between other points which did not seem at all likely to be in the course of them, as between the bowel and bladder, the intermediate genital canal having escaped. But when, in any case after the pus has been evacuated, these various openings remain and continue to furnish a purulent discharge, it often becomes a matter of importance to ascertain whether these fistulous orifices and canals communicate with each other, and whether the fluid that escapes from them be derived from one common source; and I have not yet told you how you are to settle this question for yourselves. Sometimes it is ascertained by observing the contents of one canal escaping through another, or escaping externally, as fæces by a cutaneous or vaginal fistulous orifice. In a case which I alluded to a minute ago, of inter-communication between the intestinal canal and bladder, this course of the fistula was first ascertained by small appearances of feculent matter passing with the urine. But there are cases occasionally met with where you have not such peculiar discharges to guide you in your diagnosis—as where the inter-communication is between the vagina and a cutaneous fistula, etc. How are you to ascertain the presence or absence of any inter-communication in such a complication? The first time that I ever had an opportunity of making a diagnosis as to this point was in the case of a patient who, after suffering for some years from the effects of pelvic cellulitis, was brought here from Holland to be under my care. She had three different openings—one in the vagina, a second in the thigh, and a third in the groin—all leading into the pelvis towards the side of the uterus, and all yielding a supply of pus. It became a question whether they all communicated with each other or not; and although they seemed to converge, yet I could not succeed in passing a probe through one and bringing it out at the other, nor could I be sure that they met at any point, until, on throwing a quantity of very much diluted tincture of iodine into the opening in the groin, I saw it come pouring out simultaneously into the vagina and through the opening in the thigh. By injecting, then, milk, or any coloured fluid, as a little weak tincture of iodine, in this way into one of the openings in any case where a pelvic abscess has made its way to the surface in more than one direction, you will be able to determine whether these openings are connected with a common sinus, without subjecting your patient to the unnecessary pain of probing her; and in addition to its extreme simplicity and ease of application, this means of diagnosis has the further advantage, let me tell you, of sometimes being a most effectual means of cure. It may be employed in cases of complex fistula in ano or fistula in vulva as well.

---

[1] M'Clintock, out of his seventy cases of puerperal pelvic cellulitis, found that thirty-seven ended in suppuration with discharge of pus; twenty-four bursting or being opened externally—viz. twenty in the iliac region, two above the pubis, one in the inguinal region, and one beside the anus; six were discharged through the vagina; five through the anus; and two burst into the bladder. He never knew a puerperal pelvic abscess burst into the peritoneum, and he considers that the most favourable mode of discharge is externally in the iliac or supra-pubic region.

PROGNOSIS OF THE DISEASE.

Pelvic cellulitis is by no means a very fatal disease, however formidable it may be in appearance; and it proves, in the great majority of cases, very amenable to treatment. In many instances it may lead to no other result than the effusion of serum for a week or two, which causes much pain and distress at the time, but soon becomes absorbed, and leaves no bad effects behind. If coagulable lymph have been effused, the case, becomes more tedious, and the patient may be long an invalid, and unable to walk; but ultimately you will succeed, or rather Nature will succeed, in most cases, in effecting its complete resorption. When pus has been developed and an abscess formed, its evacuation, whether spontaneous or artificial, is usually succeeded by a cure of the disease; but it is from the development of pus that the chief dangers attendant on the progress of pelvic cellulitis arise, for when an abscess has formed, it may prove fatal in one of three different ways. Either, first, it may burst into the peritoneum and lead to a fatal peritonitis—an accident which, as I have already had occasion to explain to you, is a very rare occurrence indeed in connection with pelvic cellulitis. Or, secondly, the cavity in which the pus was formed may not close up after the fluid has been evacuated, but may continue to give out a purulent discharge; and if these sinuses be of considerable extent, and the purulent secretion copious, the patient may be gradually worn out by the long-continued drain. But, thirdly, I have seen one or two cases where the disease, after subsiding for a time, again returned, and gradually became established in a chronic form, and where the patients eventually died of tubercular disease of the peritoneum — almost all cases, as you are aware, of chronic peritonitis being truly cases of tubercular peritonitis. No doubt these patients were constitutionally predisposed to the occurrence of tubercular disease, but there can be as little doubt that the localisation of it in the peritoneum was determined by the degree of irritation so long kept up in the pelvic cavity.

Pelvic cellulitis, I repeat, comparatively rarely destroys life;[1] and if it does not go on to suppuration, it may not even afterwards affect the functions of the uterus. Menstruation is seldom much, or at all events permanently, influenced by it; but what I mean is that the function of reproduction is not necessarily destroyed, especially when the disease is cut short in its first stages, and before suppuration supervenes. Many years ago I received an impressive lesson on this point. Along with Drs. Abercrombie and Begbie I visited a lady who was suffering under an acute attack of pelvic cellulitis. There was a large and hard inflammatory effusion, which felt so very dense and firm when examined through the rectum that Dr. Abercrombie—and there never was a practitioner with a greater power and certainty of diagnosis—was inclined, after making a rectal examination, to declare the case one of a malignant or carcinomatous tumour. I had seen a sufficient number of cases by that time to be assured of the true and simply inflammatory nature of the malady, and I ventured to prognosticate a perfect recovery of our patient; but I added that she would have no more children after such an extensive pelvic effusion. She speedily recovered under the active antiphlogistic measures used by Dr. Begbie; but she did more—she afterwards became pregnant, and was delivered of twins.

In my next Lecture I shall take occasion to point out how these dangers are to be avoided, and what should be the treatment generally in cases of pelvic cellulitis.

---

[1] Out of seventy cases of puerperal pelvic cellulitis, only two terminated fatally from dysentery, an abscess forming and bursting into the colon in each case.—M'Clintock, *loc. cit.*

LECTURE V.

ON THE TREATMENT OF PELVIC CELLULITIS.

The treatment of any case will vary, of course, with the stage at which the disease has arrived when it comes under your observation, and therefore, it will be most convenient to consider it under two divisions, as we considered the symptoms of the disease—viz. according as we have to treat it before or after the development of pus. Before speaking of the treatment of pelvic cellulitis,

A. Before Suppuration has begun,

let me remind you of what I have already told you in regard to the period when this occurs—viz. that when the disease is discovered at the very commencement there is no pus present at all, and abscesses only begin to be formed in ordinary cases about the twelfth or fourteenth day, when the inflammation has attained a certain degree of severity. In puerperal females, indeed, in whom inflammatory processes seem often to run a more rapid course, you may find pus present at an earlier period after the apparent onset of the inflammation; but in most cases you will not be able to detect its presence till the end of the second week. But having recognised a case of pelvic cellulitis early, soon after the patient has had the first shiverings, when she first begins to feel pain, and when the cellular tissue is just beginning to be congested, the first thing that you must do is to have recourse to

1. *The use of Antiphlogistics*, or all these remedies which you would employ in any ordinary case of acute inflammation. Perhaps I could not state the matter better than by saying that you must treat a case of pelvic cellulitis precisely according to the same principles that you would treat a case of iritis, and from this point of view, I believe that the first question you will be likely to ask yourselves on seeing a case of pelvic cellulitis would be, Am I to bleed this patient or not? Now I am not going to discuss at present the efficacy or inefficacy of general bleeding as a means of cutting short

inflammations, nor to lay down the law as to whether it should be resorted to or not in the treatment of pelvic cellulitis. I leave it to yourselves to decide as to its applicability to any special case that may come before you. But I must take leave to say—although you may perhaps regard me as heterodox for saying so—that I believe I have seen a free venesection made at the commencement of an attack of pelvic cellulitis cut short the disease, and lead to its speedy resolution. It is but rarely, however, that you will find yourselves called upon to have recourse to this measure. There are but few cases, however, of pelvic cellulitis seen in the earliest stage of the disease, in which the local abstraction of blood by means of leeches is not resorted to, and resorted to beneficially. The only question usually is, as to the point from which the blood should be taken; for you have usually the choice of a variety of places to which the leeches may be applied. Some practitioners are in the habit of applying leeches to the groins in cases of inflammation in the interior of the pelvis; others prefer having them applied to the interior of the vagina, and the surface of the cervix uteri; while others again content themselves with their application to the anus and perineum. I believe you will in most cases find the last—viz. the application of the leeches around the lower end of the bowel—to be the most simple plan, and the most effective. The hemorrhoidal vessels are freely connected with the vessels that ramify among the pelvic contents and viscera, and by abstracting blood from the former set of vessels you can act on the latter at least as directly as from any other point. And it is very easy to draw blood from this spot, for you have only to apply the requisite number of leeches in an inverted wine-glass over the anus, and hold it there for about ten minutes, and at the end of that time you will find that most of them have fastened. When it is desired to bleed at the groin, the leeches are made to fix there just as on any other part of the surface of the body; but when leeches are to be applied to the cervix uteri, a special instrument is required. Before speaking of the manner in which they are to be introduced, however, let me remark that you will find some men talking of applying leeches to particular points on the surface of the cervix uteri, according to the special seat of the inflammation. Now, even supposing it were possible in every case to make such a minute and precise application, the process is much too refined and savours too much of hair-splitting, to be attempted in practice. When we apply leeches to any part of the surface of the body, we are not particular to an inch or two as to where they fasten, and we do not regard it always as a matter of very much moment if they fix on a point even somewhat removed from the inflamed locality; and when we wish to apply them to the cervix uteri, all we have to do is to introduce them into the upper part of the vagina, and allow them to fasten where they will. To do this, you may use a common uterine speculum passed up to the os uteri, putting the leeches into it, and pushing them up with the staff. But the speculum stretches the parts, and causes unnecessary distress to the patient by its pressure on the inflamed and swollen tissues, so that its use is extremely apt to aggravate the disease. For this reason I usually prefer making use of a narrow bone or ivory tube, such as was first used in this country by Dr. Mackintosh, who was induced to make trial of it on the strong recommendation of a friend who had seen much benefit result from its employment in the hands of some Portuguese practitioners. It is simply a bone or ivory tube—or it may be made of wood or glass as well—of about three-fourths of an inch in diameter, and furnished with a loosely fitting piston. The leeches having been put into the tube, and the tube passed up to the roof of the vagina, the piston is pushed forward, and the leeches are driven out into the upper part of the cavity. They fix very speedily upon the surface of the cervix uteri and roof of the vagina, and fill rapidly. By this means you can bleed very freely, for after the leeches have ceased to draw and have fallen out or been removed by the finger, the flow from their bites may be greatly favoured and may be kept up for a considerable time by making the patient sit over a vessel of hot water, for the bleeding usually continues as long as she can sit upright. The application of leeches to the cervix uteri is in this way a most effectual means for the local abstraction of blood in cases of pelvic cellulitis, as well as of inflammation of the uterus itself, for which, perhaps, it is more frequently employed; but it is not without its disadvantages. An eminent London physician declared to me that he would never again in any instance have recourse to the application of leeches to the cervix uteri, after witnessing the severe spasmodic pain which resulted from their application in a case where one of the leeches was retained for a time, apparently from its having travelled into the interior of the uterus. It is but rarely that such an accident happens, but it does happen occasionally, and is a strong drawback against this mode of leeching in acute uterine disease; but you can readily understand how, when it did occur, the leech as it fills will cause distension of the uterus, and give rise to great pain from the spasmodic contractions which are excited to effect its expulsion, just as we see in a case of abortion. The trouble attending the application of leeches to the cervix uteri is also greater than that attendant on their application to the anus; and hence, in most cases, you will prefer having recourse to the latter. But in any case, let me add, where it might seem to you particularly desirable to have the leeches applied to the cervix uteri, you could easily guard against the danger of any of the leeches finding their way into the cavity of the uterus by filling up the os with a plug of soap or sponge previous to their introduction into the vagina. As to the number of leeches that you are to employ, and the propriety of repeating them or not, these are circumstances which in every individual case must be determined and regulated by the severity and obstinacy of the attack. I need hardly add, under this head of antiphlogistics, that it will be most necessary in every case to enjoin on your patient the most perfect rest, and the use of a strict antiphlogistic diet and regimen. Then, as regards

2d. *The use of Mercury*, I must leave the question to yourselves to settle how far you will mercurialise your patients. It is ordinarily laid down, more particularly by English authorities, in regard to the treatment of iritis and of almost every form of acute inflammation, that the administration of mercury should be had recourse to as one of the most essential elements in it; and in the treatment of pelvic cellulitis I used formerly to have recourse to it in almost every case as a regular rule of practice; and I often have recourse to it still in combination with opium, as in two-grain doses every two hours of the calomel and opium pill of the Pharmacopœia. But I begin more and more to lose faith in its efficacy, for the disease goes on sometimes unchecked even when the mouth is salivated; and I really do not know that we have any certain proof of its power of producing absorption of inflammatory effusions. Ophthalmologists tell us that they can see these effusions beginning to be absorbed in the eye just as the drug begins to exert its constitutional action; but it is assuredly doubtful whether these phenomena stand in the relation of effect and cause, or whether they are not merely coincidences. I have heard Professor John Thomson repeatedly and strongly state that he had occasion to treat forty cases of syphilitic iritis, and having no faith in the reputed power of mercury in the cure of that disease, he treated them without mercury, and succeeded in effecting a cure in all the cases, excepting two, which occurred in the persons of two medical men who had had the misfortune, in the pursuit of their profession, to get their fingers inoculated with syphilitic poison, and who suffered from iritis along with other secondary affections. These two gentlemen had great faith in the power of mercury, and insisted on having it administered to themselves, and in them alone, out of all the forty cases of iritis, did the disease run an unfavourable course and end in loss of vision. But though there is probably little benefit to be derived from the employment of mercury, there are other medicines which you can prescribe with advantage. Such are

3d. *Anodynes.*—The patient, as I have told you, has usually considerable local pain, and complains frequently of severe dysuria, tenesmus, etc.; and to relieve these distressing symptoms you must allow her the free use of opium, in all cases at least where the stomach will bear it. I have a belief that the opium exerts some power as a direct antiphlogistic, and at least, when you give it combined with ipecacuanha or antimony, you use as good an antiphlogistic as almost any other you could employ. If the stomach reject the opium, in whatever form administered, and the pain continue unabated, we must have recourse to the use of suppositories of opium or morphia, and you will find the opium given in this form relieve the pain perhaps more effectually than in any other; though the subcutaneous injection of morphia may do so more instantaneously. Other anodynes—such as Cannabis indica, hyoscyamus, lupuline, etc.—do not usually procure so rapid or complete relief as opium. In addition, you may have recourse, further, to

4th. *The use of Alteratives and Depurants;* by which I mean, that it will often be advisable for you to administer the alkaline carbonates and hydriodates, according to a practice much in vogue among continental physicians, and which I believe to be a successful practice in many cases of acute cellulitis. The French employ them frequently, and, as they aver, with the happiest results, in cases of croup and other acute inflammations. They believe that these alkaline salts have the power of arresting inflammatory action and blotting out its effects.

5th. *External Fomentations, Counter-irritation, etc.*—In addition to the use of these internal remedies, you will find warm fomentations and poultices externally—especially if the poultice be covered with some anodyne, as laudanum or belladonna—sometimes soothe greatly in the earlier stages of the disease, and when there is much local pain. I have seen also strong belladonna ointment laid on externally, or a liniment of equal parts of chloroform and olive-oil, applied on the iliac or pelvic region, or any pained spot, relieve the patient of local suffering. Let me here add, what I should perhaps have already mentioned, that medicated pessaries containing morphia, belladonna, etc., prove sometimes excellent anodynes when introduced twice or thrice a-day into the vagina; and that medicated pessaries of mercurial and iodide of lead ointment form one of the best of local deobstruents, when it is your object to produce the absorption of the effused serum and coagulable lymph, either in acute or sub-acute forms of the disease of which I am speaking. In the treatment of pelvic cellulitis—as of iritis and other forms of acute inflammation—a degree of counter-irritation is often of most essential service. The good effects of the application of counter-irritants in inflammations of internal organs are so well known to you, that it is altogether unnecessary for me to enter into any disquisition on that topic. The only question is, What is the best and most convenient form of counter-irritant that we can in such a case employ? Now, here I must particularly warn you against the use of that most common and convenient of counter-irritants — the fly-blister — because of the tendency which it has to excite dysuria or to aggravate it when it is already present. At all events, if you will use it, you must take the usual measures to prevent this unfortunate effect. But if you desire to produce a rapid and active counter-irritation, I believe that you cannot do so better than by applying solid nitrate of silver so as to produce vesication. Or you may use a strong tincture of iodine, painted twice a-day over all the lower part of the abdomen. But, finally, with all your other treatment, you must not forget to attend to

6th. *The Regulation of the Bowels.*—With reference to this point you must remember not to allow the lower bowel to become filled and gorged with feculent matter, so as to be left to press upon the inflamed part, aggravating the pain and annoying the patient. Nor, on the other hand, must you be frequently administering strong medicines, which would purge and excite the action of the intestines and necessitate much motion on the part of the patient. Frequent and violent action of the bowel would act even more injuriously on the progress of the disease than the distension of it with fæces, if this be accompanied by perfect rest; but the proper plan is to administer from time to time, at intervals of three or four days, some simple aperient by the mouth, and afterwards to aid its action by a mild enema.

B. After Suppuration is established.

So much for the treatment of pelvic cellulitis in its earlier stages. But sometimes the disease will go on in spite of the most skilfully-directed treatment, and end in suppuration; and you will be occasionally called on to treat cases in which abscesses have been formed before they come under your care. If you see a patient, for instance, on the sixteenth day after the disease has begun, who presents all the symptoms of hectic fever, whose pulse beats with undiminished rapidity, and in whom the inflammatory swelling has not lessened in size, but only become more soft and yielding you may make sure that in that patient the disease has ended, or will ere long end, in the formation of pus. The question then arises, How is such a case to be treated? and we reply, You must have recourse to

7th. *The Administration of Febrifuges and Refrigerants.* — Your patient is thirsty, and you will require to give her ice, or a few drops of nitric or phosphoric acid in water for a drink. She is worn down and feverish, with fits of cold succeeded by burning heats; and you will require to administer quinine to counteract the aguish tendency, and to keep up her failing strength. With this view,too, you may be obliged to have recourse to some gentle stimulant, or to the use of an alternation of tonics to support her until the abscess is ripe, and ready for evacuation. In some cases the use of wine, even in considerable quantities, becomes indicated. Again, perspirations sometimes occur, excessive and exhausting; and to moderate them you may have to administer some sulphuric acid along with the quinine, or to give her the phosphate of the alkaloid in dilute phosphoric acid. The next thing to be attended to is

8th. *The Evacuation of the Abscess.*—But in regard to this point, let us endeavour, as a preliminary step, to determine whether a pelvic abscess ought always to be opened or not. I have more than once already told you that when left to itself the matter has a tendency to find its way to some point on a cutaneous or mucous surface, there to become evacuated. Such spontaneous evacuations, when they take place internally, are most frequently into the vagina or the rectum, and these are precisely the places where we particularly desire to see the evacuation occur. But this, unfortunately, is not the invariable rule; and I feel perfectly sure that in any case it is better carefully to watch the progress of the suppuration, and to take it into your own hands to make a proper artificial opening for the discharge of the abscess in a safe and suitable situation, than to leave the guidance of it to nature, and to run the risk of seeing the purulent collection burst in some dangerous or disagreeable locality. By making a prompt and judicious opening into a pelvic abscess, you may even in some cases save your patients' lives. One of the earliest cases of pelvic cellulitis that I saw occurred in a patient whom I watched in the Lying-in Hospital, along with Dr. Ziegler. The inflammation had extended lower down than usual, to the cellular tissue lying between the rectum and the vagina, and had led to the formation of an abscess which had begun to point towards both of these canals. Such was the state of matters one day when we examined the patient; and we both decided that it was of no use to make an artificial opening, as it seemed certain that the matter must speedily find an exit for itself. either into the canal of the rectum or of the vagina. And, certainly, within four-and-twenty hours from the time when we made our examination, the abscess did burst; but we found, to our dismay, that instead of opening on one of these mucous surfaces, to which it pointed so distinctly, the abscess had burst into the peritoneal cavity, where the effused pus had given rise to intense irritation, and lighted up a peritonitis that proved rapidly fatal. But there is usually not by any means so much risk of the abscess opening into the peritoneum, as of its becoming evacuated in some unpropitious situation, such as the bladder, with which it may come to communicate directly; or high up in the rectum or intestinal canal; or the matter may find its way into both bowel and bladder at once; or by some other double opening; and this, as well as all the other unfavourable complications which I have pointed out to you as liable to result from the unguided process of suppuration in the pelvis, and from spontaneous rupture of the abscess, may almost always be easily avoided by early and well-directed artificial evacuation of the pus. I trust from what I have said, the propriety of surgical interference is sufficiently impressed upon your minds, and that you are now prepared to enter with me upon the consideration of three questions in regard to it—viz. When? Where? and How? is the abscess to be opened.

a. The proper TIME *for Artificial Evacuation.*—To the first of these three questions—that, namely, which asks *when* a pelvic abscess ought to be opened by the surgeon—it is impossible for me to furnish a reply that would hold good in every particular case. It is impossible for me to say that on any given day from the commencement of the inflammation, or the hectic fever, an abscess must be so far advanced as to be ready for the knife; for in some patients, and under certain conditions, the processes of inflammation and suppuration go on more rapidly—in others, again, more slowly. But one piece of general advice I can give you, and that is to withhold your hand so long as there appears to you no risk of the abscess bursting into the peritoneum, or opening into the bladder, or in some other situation less favourable than that in which you are prepared to puncture it. It is better not to open it too early, because there is usually more than one collection of pus, and if the case be left to itself for a sufficient length of time, these once separate collections will finally be found to communicate freely with each other, so that by making an opening into one you are able to empty them all, and thus obtain a prospect of a speedy cure. But if you make an opening at too early a period into one of the collections, you succeed in evacuating that loculament alone, and so give room for the enlargement of the other abscesses, which, after a time, and each in succession, may cause distress and call for a renewal of the operation. For this reason I would recommend you to defer the artificial evacuation of a pelvic abscess as long as it seems to you to be safe to allow it to go on unguided, and as long as the severity of the hectic symptoms, or the failing of the patient's strength, do not appear to call for more immediate interference. But in any case where you have decided upon giving a vent to the pent-up matter, the next thing you have to do is to choose

b. The proper PLACE *for Artificial Evacuation.*—If you find it possible in any case to open with sufficient freedom a pelvic abscess at some point on the cutaneous surface, by all means open it there. But it is only in cases where the cellular tissue of the brim or of an iliac fossa is implicated that it will be in your power to do so. Generally pelvic abscesses have a greater tendency to point internally, and to open into some mucous cavity, than to make their way towards a cutaneous surface.[1] Internally I have seen pelvic abscesses open in almost every conceivable direction; and, as the result of all my observations, I have no hesitation in saying that the proper place for their artificial evacuation is through the vagina. I have said that abscesses opening into the rectum usually heal very well also; but there is this risk attendant on a communication between the cavity of an abscess and the cavity of the rectum, that fæcal matters in some rare cases get into the abscess, and either prevent and protract its healing, or light up a fresh inflammation; and when a sinus becomes established high up in the pelvis, it is very difficult of access through the rectum. On the other hand, pelvic abscesses discharging into the vagina usually heal very rapidly; and in those cases where the healing process, from some constitutional peculiarity in the patient, goes on more slowly, the opening is still very easily accessible, and in so far is more amenable to treatment. Again, in opening pelvic abscesses artificially, you may inadvertently wound a vessel of sufficient size to give rise to an alarming amount of hemorrhage; and if the incision has been effected through the rectum, you will find it very difficult indeed to arrest or restrain the bleeding there; whereas, in the case of the vagina, hemorrhage into it can always be restrained by plugging. It is not often that this accident happens, but we do meet with it sometimes. A year or two ago I attended, along with Doctor James Duncan, a patient with a pelvic abscess which we determined to evacuate through the vagina; and although I used every precaution in doing so, yet I wounded a vessel of considerable size, and we had to keep the vagina plugged for a couple of days to check the bleeding that ensued. You will usually find, in selecting the part of the vagina through which to evacuate the abscess, that the best point for the purpose is that spot in the roof of the canal *immediately behind the cervix uteri*, to which I called your special attention when treating of the pathology of the disease, and where, as I told you, the mucous membrane was supported and protected only by a very thin layer of the pelvic fascia.

---

[1] This is only true of intraperitoneal pelvic abscesses.

At this point, then, in the posterior cul-de-sac of the roof of the vagina, you will usually find the wall at one point soft and yielding, so that you can press the tip of the finger into it, and here it is that your opening is to be made. It is, I repeat, very easy of access; and as it is, in the great majority of cases, the most dependent point at which an opening could be made,

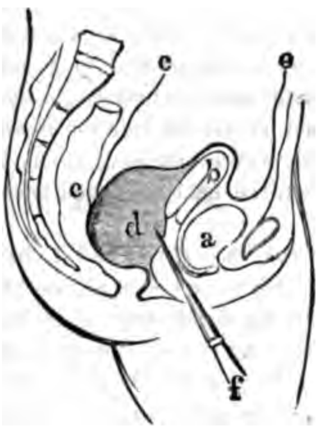


Fig. 19.

Fig. 19. Diagram showing the situation of a purulent collection (*d*) behind the uterus (*b*), and the point at which it may be punctured through the vagina by means of an instrument (*f*). *a*. The bladder. *c*. The rectum. *e e*. The ends of the peritoneum.

you may hope to evacuate the abscess more effectually by puncturing it here, than by puncturing it at any other point. Having decided, then, in any case that the abscess must be evacuated, and having determined at what point the opening is to be made, you have next to make up your minds as to

c. The proper MEANS *for Artificial Evacuation.*—For opening pelvic abscesses some have recommended the use of a long curved trocar and canula, such as are used for puncturing the bladder through the rectum in cases of retention of urine, and if the pus be "well digested" and the abscess perfectly mature,—to use the well-known and sufficiently expressive phraseology of the older writers,—such an instrument will usually suffice for its complete evacuation. I saw a case some time ago, along with Dr. Young, where I passed a long trocar and canula of this description along the inner edge of the iliac bone, and so gave vent to an abscess seated very deeply in the iliac fossa. This depth I could not well have reached with a knife; yet in by far the greater number of cases, the knife is by much the preferable instrument. It is not always that the matter is so fluid as to escape freely and full at first through the canula, and then the opening made by it is so small that it readily closes, and thus you are very apt to have a re-accumulation of the pus. Such a risk you do not encounter when you use a knife for opening the abscess, for with it you can make the opening as free as you will. You may use an ordinary bistoury, in which case you must wrap the whole of the blade round with lint or tape, except the tip of the instrument, so as to guard it and prevent it from wounding any part of the canal. But I believe that you will always succeed best, and operate most successfully, with a tenotomy knife. Introduce the forefinger of one hand into the vagina, to guide and guard the point of the tenotomy knife up to the soft and yielding spot, and feel if there is any artery pulsating at the point you propose to puncture, and if so go to one side of this point, pushing in either case the tenotomy knife forward into the abscess with the other hand. On doing this you will usually feel the pus escaping through the opening, but the knife must not be at once withdrawn—not till you have made a slight incision with it to one or other side, wide enough to admit the tip of the forefinger to be pressed through. With the finger forced through enlarge the opening, avoiding the further use of the knife if possible. As you thus enlarge the opening with the finger still more, you will be able to feel with it whether there are further loculaments or dissepiments beyond. If all the different loculaments have already come to communicate with each other by enlarging the opening in the manner I have indicated, you ensure a free outlet for all the matter. If you find the pus to be fetid when it escapes, as it sometimes is, then you must bear this further in mind, that that phenomenon is sometimes due to the presence of gangrenous masses in the abscess, and that a perfect cure can never be accomplished until these be completely removed. Break down the walls of these dissepiments or loculaments as much as you can before removing the finger. After a free and dependent opening has thus been made into the abscess, there is usually nothing further to be done. To exert pressure through the abdominal parietes, as has sometimes been recommended, is altogether unnecessary, for the abscess empties itself completely without any pressure whatever from above. All that you have to do now is to attend to the patient's general health, which requires to be supported; and to introduce the finger again into the vagina after a day or two, and open up the wound, to prevent its lips from adhering by the first intention, and so lead on again to closure and reproduction of the abscess. By following out these simple rules you will find that in most cases the purulent discharge begins to dry up after a few days, and in about a week the patient begins to recover from all her untoward symptoms, and becomes gradually restored to her former state of health. In most cases, I say, but unfortunately not in all; for in some instances where pelvic abscesses are evacuated either naturally or with the help of art, a sinus is left which keeps on discharging pus, and which renders it necessary for the practitioner to make one or more

9th. *Counter-openings.*—After an abscess in the broad ligament of the uterus, for example, has been evacuated, suppuration may still go on and spread along towards its external border, and as the matter which is here formed might have difficulty in escaping through a wound in the roof of the vagina, the abscess may go on for years, alternately filling and being discharged, and never healing up at all until another opening has been made in the side of the pelvis. I once saw a very striking illustration of the necessity and value of making a counter-opening, in the case of a patient, the wife of a medical gentleman, whose history showed that several years before she had had an attack of pelvic cellulitis and abscess, which, after spontaneously discharging and making a fistula, had been allowed to go on for many years, until the hectic fever became so distinct, and the reduction of the patient's health became so great, that two eminent physicians, who had a consultation about her case, came to the conclusion that she was labouring under tubercular disease; and they sent her on a distant voyage in the hope that she might recover in a milder climate. After a year's absence she returned, improved in health, but still with two fistulous openings, one in the rectum, the other high up in the inguinal region, both of them ever and anon discharging quantities of pus. On introducing a long ball-probe into the external orifice near the anterior spine of the ilium, and pushing it down along the fistulous track, I could feel it distinctly through the roof of the vagina. At this, the most dependent point in the whole course of the sinus, I made a counter-opening, through which I pushed the probe, and brought it out at the vagina. The late Dr. Bright was with me at the time, and he afterwards told me he never was in such terror in his life,—for, first, he saw the lady snoring under chloroform, the use of which he had never witnessed before; and then, secondly, he saw that long metal rod sinking away down and down into the depths of the abdomen and pelvis until after my incision it emerged at the vaginal orifice. The result of that operation was most satisfactory, for the matter had now a free outlet for escape; the sinus speedily closed in its entire extent; and the patient recovered betimes her lost health and strength under the kind and able care of my friend Dr. Traill of Arbroath. Such a case illustrates, in a very impressive manner, the value and importance of making a counter-opening, in the case of a sinus remaining after the evacuation of a pelvic abscess. But you may find cases of pelvic fistulæ of this nature occurring in practice where it may be impossible for you to adopt this plan of treatment. An abscess may have opened spontaneously on some surface, and through the opening from which the matter still escapes you may push a probe without arriving at any other point where a counter-opening would be likely to prove of any service; or in evacuating an abscess with the knife you may have found it impossible to make an opening sufficiently large to admit of the full and free escape of the pus, which continues slowly to be discharged during a lengthened period. When such a state of matters exists, there are two other different modes of treatment which you may adopt. You may have recourse first, for example, to

10th. *The Injection of Tincture of Iodine.*—Of the value of this measure as a means of diagnosis I have already spoken. Let me now add only one word as to its value as a means of cure. Injection of tincture of iodine in a slightly diluted form into a fistula will almost never produce any bad effects; at least, I have never seen any untoward symptoms result from it, although I have had recourse to it in many cases and many kinds of fistula. Its use, I say, is always safe, and its action is often most satisfactory. The only drawback is, that the injection may require to be repeated again and again, if at first it does not prove successful; and when it becomes necessary thus to have recourse to repeated injections, it is advisable to use a stronger and less diluted preparation. Should the injection of the strongest tincture of iodine fail in effecting a cure of a fistula, you may next have recourse to

11th. *The Introduction of a Piece of Wire.*—In the beginning of the last winter session I saw a fistula resulting from pelvic cellulitis in the case of a patient where an abscess had been evacuated behind the cervix uteri. Having injected some tincture of iodine into it, and finding little benefit result from its use, I introduced some iron wire into it, and left it lying deep in the cavity of the abscess. In the course of a few days a sufficient degree of inflammatory action was excited to lead to the formation of granulations, and the wire being then removed, the abscess quickly healed and closed up entirely.

12th. *Use of Tonics and Deobstruents.*— Finally, where much effusion remains in the surrounding tissues, your treatment of the case does not end even when the abscess has been healed, and the fistula dried up. But the treatment is now easy and simple, for all you have to do is to endeavour to restore strength to your patient by the well-regulated administration of cod-liver oil, quinine, iron, and other tonics; and where some degree of hardening and induration remains, you must put her upon small doses of iodide of potassium, or, what I think you will find better still, give her five grains of the bromide of potassium three times a-day dissolved in water, or in a vegetable tonic infusion.

And now, before I have done with this subject, let me fulfil a promise which I made to you when I began it, by reading to you the observations that were made regarding pelvic cellulitis by Archigenes, and which have been preserved to us by Ætius. Remember that Archigenes practised at Rome at the termination of the first, and in the early part of the second century, and that the following account of pelvic cellulitis was written by him within a few years of that distant time when the Emperor Hadrian visited Britain, and commanded here the building of that enormous wall from the Tyne to the Solway, the gigantic remains of which, and of the dilapidated Roman cities raised along its course, form still in Northumberland such striking and startling objects even at the present day.

" OF ABSCESS OF THE UTERUS, FROM ARCHIGENES.

"Abscess in the uterus, as in other parts of the body, results from a previous attack of inflammation. In the first instance, therefore, the symptoms of inflammation will be manifested, and afterwards when the pus begins to be formed the pains are increased, and fever sets in with shiverings, mostly towards evening; a tumour is formed and a pricking pain is felt; in some cases there is suppression of urine, and in others the evacuation of the fæces is interfered with, or both may be simultaneously affected. But the local pain will indicate the seat of the disease. Then, if it cannot be discussed, the suppuration must be artificially promoted. For this purpose poultices of linseed, fennel, barley-meal, boiled figs, mallow-root, or turpentine, are to be applied to the lower part of the abdomen and to the loins. The pudenda are to be constantly fomented with a sponge, and vapours are to be introduced into the vagina by means of a reed inserted into the perforated lid of a dish. The patient must be made to sit frequently in baths containing decoctions of those herbs which have a drawing property, such as pennyroyal, horehound, laurel, sage, mugwort, dittany, centaury. But if the pain should set in still more violently, poppy-heads boiled in water and bruised must be added to the poultices." Then he goes on to give prescriptions for various medicated pessaries, which may be useful under certain circumstances; and afterwards he proceeds thus: "But when the abscess bursts, if the pus be carried into the bladder, and be excreted with the urine, the patient must drink milk and take cucumber-seeds; and poultices such as we have described must be applied, and emolient and odoriferous ointments. But if it makes its way into the intestinum rectum, and escapes alone or with the fæces, we must administer a decoction of lentils and pomegranate bark as a clyster."

LECTURE VI.

PELVIC PERITONITIS.

Synonyms—Pelvi-péritonite (Bernutz)—Inflammation Péri-utérine (Courty)—Pelveo-peritonæitis (Scanzoni)—Perimetritis (Virchow).

In the preceding lecture I attempted to describe a disease which, up to a few years ago, was considered one of the most common of the inflammatory affections occurring within the pelvis. But as our knowledge of pathology has advanced, it has become recognised that many of those cases which have been looked on as purely extra-peritoneal, are in reality affections of the serous membrane itself, and the consequences arising therefrom; and that, in fact, we have to deal with two perfectly separate and distinct diseases, which, however, may complicate each other.

It would be unjust to one of the most careful and conscientious of clinical observers, M. Bernutz,[1] not to mention that it was prin-

---

[1] As the two diseases Pelvic Cellulitis and Pelvic Peritonitis have lately been denominated by Virchow para- and peri-metritis, and as this nomenclature has been introduced into our country in a monograph only recently published, I am compelled to attempt to justify my adoption of the terms which head this and the preceding chapter, and I trust to be able to show that if those terms are not absolutely perfect, still that they are preferable to, and less confusing than, any others that have as yet been proposed. Many of the names advanced are bad compounds, such as peri-uterine cellulitis, or phlegmons peri-utérins; others as too limited in meaning, as inflammation of the broad ligaments; while some again only indicate one of the stages of the affection, as engorgement periutérin.

Let me then state, as succinctly as possible, my reasons for preferring the two names I have adopted to those proposed by Virchow.

1*st*. The two Greek propositions *peri* and *para* are here employed arbitrarily to indicate inflammatory processes which are essentially distinct. Peri means "round about," para "by the side of;" but it cannot be said that the cellular tissue is less round about the uterus than the peritoneum. In fact, it separates the womb from its serous lining except at the fundus, so that perimetritis might be taken to indicate one of the varieties, though not a very common one, of pelvic cellulitis. In fact, the term *perimetric* cellulitis has been employed with this meaning; and as the preposition para has not been employed in the form of a compound to express inflammation of the cellular tissue round any other organ, it is evident that no little confusion might arise as to the real nature of the disease, simply by the transposition of a couple of letters of the alphabet.

2*d*. The term perimetritis, even if employed only to indicate inflammation in cipally to his researches that we are indebted for our increased knowledge of the true nature of the affection I am about to treat of in this chapter, though we are by no means prepared to go so far as he does, and almost absolutely deny the occurrence of cases of perimetric cellulitis at all. The fact is, that while the doctrine of inflammation of the cellular tissue in the pelvis, after its revival in England by Doherty and Churchill, was carried too far by the enthusiasm of Nonat in France, M. Bernutz committed an equally grave error by rushing much too blindly in the opposite direction. The truth, as it usually does, lies between the extremes; and while we may easily believe that M. Bernutz has verified his diagnosis more frequently by autopsies in cases of pelvic peritonitis, it must not be imagined that, on account of the rarity of such post-mortem verification, cases of perimetric cellulitis are uncommon. On the contrary, I believe that the very fact of the lesion being so frequently extra-peritoneal is the reason why we so seldom have an opportunity of completing the diagnosis in the way mentioned. No one can for a moment doubt that pelvic peritonitis is a much more serious and grave lesion, and one much more likely to produce a fatal issue, than inflammation of the cellular tissue of the pelvis, and of that alone.

---

the peritoneum, could not well be used if the inflammation were confined to the serous membrane round the tubes or ovaries; and we should require in consequence to adopt the terms perisalpingitis or perioophoritis, to express the varieties of pelvic peritonitis, thus unnecessarily encumbering our nomenclature.

3d. In the same way, and to most Greek scholars, the term parametritis would imply too close a proximity to the uterus to be used with correctness in a case, *e.g.*, of puerperal cellulitis in one or other of the iliac fossæ—a difficulty which the term pelvic cellulitis gets over admirably.

4th. According to our best Greek authorities, the preposition "para" is never used to indicate proximity to a person or thing, except with the idea of motion towards or by the side of that person or thing. Thus Donaldson and Jelf—both eminent Greek scholars—give, as an example of para with the accusative, the expression from Xenophon, "*παρα τον ποταμον παριεναι*," which certainly indicates motion by the side of. I need not point out how absurd it is to use a preposition which, in the manner employed, can only express motion to indicate a standing disease.

5th. Pelvic cellulitis and pelvic peritonitis not only show to any one at a glance the nature of the affection, whether it is inflammation in the cellular tissue or in the serous membrane in the pelvis; but also they do not limit the *seat* of the disease to the immediate neighbourhood of the uterus, as I maintain the words peri- and para-metritis must do. If we keep in remembrance that the terms pelvic cellulitis and peritonitis are only to be employed by gynæcologists when the inflammation in the pelvis arises from some kind of disease of or injury to the uterus and its appendages, I hold that the terms can produce no confusion whatever in the minds of those who adopt them, but must necessarily assist them in rapidly forming a conclusion as to the seat and pathology of the affection.

While, on this account, we have seldom any opportunity of confirming the existence of a perimetric cellulitis by post-mortem inspection, such a case as that reported by M. Simon[1] goes far to prove, not only the possibility of its existence, but even the probability of its frequent occurrence.

PATHOLOGICAL ANATOMY.

The disease of which I am treating is essentially inflammation of the pelvic peritoneal lining membrane—as the name indicates—and its results; and it must be remembered, before we go farther, that this inflammation rarely, if ever, can be said to be idiopathic, being usually merely symptomatic of some disease in one or other of the organs in the pelvis.

If we had the opportunity of examining such a case in its first stage, that of simple inflammation, we would find nothing more than the ordinary intense congestion and redness of an inflamed serous membrane, with perhaps a little lymph here and there on its surface, and in the cavity of the pelvis more or less of the sero-albuminous fluid poured out from its distended vessels. In some cases, though probably in very few, the disease may never go farther, beginning and terminating in this stage; and we may suspect such to be the explanation, perhaps, of some obscure attacks of pain occurring occasionally in the course of recovery from child-bed. At least, it is not easy otherwise to account for the greater frequency with which we find pelvic adhesions in autopsies of females than we can refer to symptoms which at the time were supposed to be occasioned by peri- or para-metritis.[2]

In by far the greater proportion of cases, however, the inflammation is not arrested at the stage we have spoken of. Usually the serous fluid, so abundantly poured out by the congested vessels, begins to deposit on the surface of the inflamed serous membrane flakes of fibrine or lymph, which, as they become more numerous, cover it with a greyish-white deposit, and gradually bind the opposing peritoneal surfaces together; so that, for instance, we find the uterus bound to the rectum or bladder, and the intestines matted tightly together, or adherent to the different pelvic viscera. The serum, too, seldom long remains as such; it is very often rapidly converted into pus, which usually sinks into the most dependent part, so that we most frequently find it in the posterior cul-de-sac of the pelvis. Sometimes it gets encysted from the union of opposing peritoneal surfaces above it, and these encysted abscesses in the posterior cul-de-sac are those which we can most safely evacuate. According to Scanzoni, we very frequently find a fatty degeneration in the superficial layers of unstriped muscular fibres of the uterus, but I have had as yet no opportunity of confirming this statement.

---

[1] *Bulletins de la Société Anatomique de Paris*, xxiiii^e. année. No. 20, p. 234.

[2] M. Aran has found such pelvic peritoneal adhesions and evidences of old inflammatory action in the pelvic cavity in 55 per cent of women examined post mortem by himself. As we might expect, those proofs of bygone inflammation were more frequent in the married than the unmarried, and most in those who were known to have had large families.

In the third stage the pus either finds its way to the exterior by some one or other of the outlets to be afterwards mentioned, or it may become disintegrated, gradually becoming fatty and being absorbed; or, the peritonitis extending to the abdominal cavity, the case may terminate fatally before either of those events happens. The deposited lymph becomes more strong and firm, and the adhesions thus produced very dense and fibrous. The hard and resistent tumour, we find by examination in such cases, is entirely the result of the matting together of the different pelvic and abdominal viscera by such strong and tenacious adhesions, and of the accumulation of serum or sero-purulent fluid in the pelvic cavity.

SYMPTOMATOLOGY.

Having thus briefly gone into the true pathology of the disease we are at present considering, let me direct your attention to the symptoms to which it gives rise, and to the manner in which we can most easily distinguish it by those symptoms from other diseases simulating it. Perhaps we could find no better method of making you familiar with the affection we are treating of, than by citing one of the most illustrative of the cases given by M. Bernutz.[1]

A young woman, aged 18, was admitted into Lourcine, February 12, 1856. Her mother died of phthisis. Has always enjoyed good health. Menstruation began at fifteen without pain, and has been regular since. She had sexual intercourse, for the first time, on the 10th of February 1855, and since then has only menstruated three times—viz. in February, July, and December; in all other respects she has been in good health, till the venereal attack for which she was admitted into hospital. From the 20th to the 25th January she had sexual intercourse with a man who was under treatment of some kind at the Hôpital Midi. After this she had a greenish discharge; but still she felt well, till the eighth day, when she was seized with sharp pain in the lower part of the body, which was increased by movement and defæcation; these continued to increase, and for them she was admitted into Lourcine.

---

[1] Vide *Les Maladies des Femmes*, par MM. Bernutz et Goupil, tom. ii$^{\text{ième.}}$ p. 13 *et seq.*; or the Sydenham Society's translation of the work, vol. ii. p. 6.

Examination of the mouth showed no sign of past or present syphilis. She complained of great pain across the lower part of the stomach, especially to the left; it was increased by movement and defæcation. The anus and external genitalia were healthy. The meatus, and inner surface of the labia minora were very red, as was the whole vaginal canal and surface of the cervix. A purulent, sometimes glairy, mucous discharge issued from the cervix. The cervix itself was small, conical, soft, and normal in direction. A resisting body was felt in the anterior cul-de-sac, perpendicular to the cervix; it occupied also the posterior and left lateral culs-de-sac, and indeed existed all around the cervix, except on its right side.

In the right vaginal cul-de-sac a groove of separation could be felt between the cervix and the tumour. Pressure on this tumour, on its left and posterior parts, caused great pain in the abdomen, similar to that experienced by the patient in moving, etc. Ordered fifteen leeches to the left iliac region, rest, etc. This gave some relief, and the redness was slightly diminished; the tumour, however, remained as before—perhaps the groove of separation was more distinct. By rest, in a few days there was some further improvement.

Then, again, the iliac pains returned, and any examination increased the suffering, the discharge increasing with it.

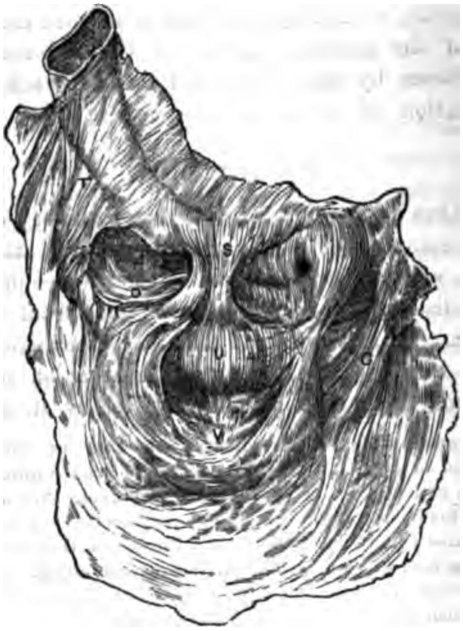


Fig. 20.

Early in March she had an attack of jaundice; then symptoms of pleurisy on the right side, ægophony, etc. These symptoms increased in severity, accompanied with great dyspnœa. Paracentesis thoracis was accordingly performed, and an enormous quantity of fluid was drawn off, but without any appearance of pus or lymph. This gave great relief, but only for a few days; the chest refilled, and was again tapped; this time the fluid was purulent. Iodine was therefore injected, but this failed to prevent a repetition of the effusion. Tapping was accordingly repeated for the third time; but the patient sank, and died on the 12th of May.

Post-mortem Examination.—On opening the abdomen, the bladder, uterus, broad ligaments, and sigmoid flexure, were all bound together by old firm adhesions, as is represented in the annexed sketch.

The posterior surface of the bladder V was united to the uterus U by two bands of adhesions, one of which passed on to the sigmoid flexure S; the other united also the Fallopian tube T to the sigmoid flexure. Between these two vesical bands, the vesico-uterine peritoneal cul-de-sac was healthy. The right broad ligament D, covered by the membrane from the bladder, formed, as it passed behind the border and right angle of the uterus, a demi-involucre, which constituted the upper and internal wall of the pelvic cavity of that side. All this peritoneum was covered with false membranes. On the left there was no pelvic cavity; the broad ligament was united to both bladder and rectum. On quietly separating these adhesions, an intra-peritoneal abscess, full of pus, was opened; it was situated in front of and below the ovary, being in direct contact with the peritoneum covering that viscus. The uterus itself was bound posteriorly to the rectum, but was also acutely anteflexed.

The Fallopian tubes were highly congested. The right contained two small purulent collections—one at the fimbriated extremity, which was dilated, opening adherent to the ovary. The left tube was impermeable, but contained no pus. The ovaries were both healthy.

The cellular tissue of the broad ligaments and uterus was perfectly healthy.

Here we find the pelvic peritonitis arising from the extension of a gonorrhœal inflammation through the uterine and tubal mucous membranes to the peritoneum, a point on which M. Bernutz lays great stress, as showing the analogy between pelvic peritonitis produced in this way, and the affections of the epididymis arising from a similar cause in the male.

The following case is a good example of the ordinary form of pelvic peritonitis with effusion, occurring after delivery. For the report I am indebted to Dr. Cumming, the resident surgeon of the Maternity Hospital at the time. The post-mortem examination I witnessed myself, and the notes were drawn up at my direction.

Mrs. S., æt. 29, was delivered of a male child at the seventh month on January 9th, 1869, after a labour lasting nearly forty hours.

At the commencement of the labour, when the os was dilated to the size of a sixpence, considerable hemorrhage occurred, lasting some hours. The pains were continuous and of little strength. Forty-five drops of laudanum were given, which increased the intervals considerably, the pains becoming stronger. The passages were very tense, and the perineum small.

January 10th.—Patient had a tolerable night. Pulse quick, but otherwise well. Took her food pretty well.

January 11th.—Stated that she felt very well. No pain or headache.

January 12th.—Complains of slight abdominal pain, or rather tenderness.

Headache: pulse 120. Ordered poultices; ℞ Pulv. Doveri gr. v., Calomel gr. i., every four hours.

January 13th and 14th.—Pain still continues. Complains of slight pain and difficulty in making water. Ordered Spt. Eth. Nit. ʒi., Tinct. Hyoscy. ♏xx, every three hours. Water drawn off by catheter.

January 15th.—Pain continues, but not very severe. Could bear considerable pressure on the abdomen with the hand. Opium and poultices continued.

January 16th.—Patient had a pretty good night. Complains of shooting pains all over her body, and was very restless. The nurse informed me that there was a considerable amount of purulent discharge from the vagina.

January 17th.—Complained of severe pain under both mammæ and across the abdomen. Passed a very restless night. Catheter used.

January 18th.—The abdominal pain is rather more severe, but she still bears pressure. Patient complains of palpitation of the heart, and was anxious I should examine the heart and lungs, but these were normal.

In the evening I saw her several times. Was slightly feverish and broke into perspiration. Did not complain of the abdominal pain so much as of the shooting pains all over her body. I saw her at 1 A.M. on the 19th, when she was pretty quiet.

January 19th.—Saw her at 7.30 A.M. Could not see her face very distinctly as the shutters were closed, but she answered quite coherently that she had passed rather a restless night. I then went home, and when I returned at 11 A.M. heard from the nurse that she had died at 10 A.M., perfectly conscious till an hour previous.

All along the symptoms were very obscure, and the termination sudden.

Post-Mortem Examination, 24 hours after death.—The body was well nourished, but was rapidly decomposing. On opening the abdomen, a quantity of serous fluid escaped from the lower part, and there was found to be general peritonitis. The posterior part of the pelvis was hollowed out into a large cavity containing about a couple of pints of sero-purulent fluid, which had principally gravitated into the lower part of the retro-uterine cul-de-sac. This cavity was formed by the still enlarged uterus and the ovaries and broad ligaments in front and to the side, and by adhesions of the fundus uteri to the intestines above, and by the rectum and peritoneum behind. It seemed to be quite cut off from the abdominal cavity. The adhesions were recent and easily removed. The peritoneum over the rectum and sigmoid flexure was covered by recent lymph. The uterus, as measured by the uterine sound, was 6½ inches in length; its breadth 3½ inches from one Fallopian tube to the other. The posterior surface was covered by a deposit of recent yellowish lymph about one line thick throughout. The fundus uteri itself presented the appearance of detached portions of lymph at the points at which it had adhered to the intestines.

The anterior wall normal.

Os uteri ragged and ulcerated, about the size of a florin. On opening into the uterus, its internal surface presented the appearance of that of an ordinary puerperal uterus. The placenta had been attached to the anterior wall below the level of the orifices of the Fallopian tubes.

The cervix was rough and irregular, and 1½ inch in length as measured along the anterior wall. A small vascular polypus was attached to its right lateral surface.

Bladder normal.

The posterior surfaces of both right and left broad ligaments covered with flakes of lymphy deposit. Their anterior surfaces, on the other hand, simply presented an appearance of vascular congestion. The Fallopian tube of the right side was very much thickened, feeling almost solid to the touch. It was covered by flakes of recent lymph. Its circumference measured 1 inch. The orifice at the fimbriated extremity was much dilated, easily admitting the end of a No. 10 bougie. The left Fallopian tube was natural in appearance, admitting at its peritoneal end the point of Sir J. Simpson's uterine sound only with difficulty.

Left ovary contained some old corpora lutea; its posterior surface covered by lymph.

Right ovary much enlarged. Length 2 inches; and vertically (from above downwards) 1½ inch. On its anterior surface, and close to the Fallopian tubes, a small rounded orifice about the size of a fourpenny-piece was found. Its edges were smooth. On the lower border, another but larger rounded orifice existed. It was about the size of a shilling, and had ragged and everted edges. Neither of these two orifices was made in removing the uterus and ovaries from the pelvis. They communicated with each other, and the ovary between was excavated out into an irregular cavity, which, however, contained no pus.

On the posterior surface of this ovary a corpus luteum was found immediately below the peritoneum. It was larger than a pea, and some traces of vascularity still existed, and it probably was the corpus luteum of the pregnancy.

The mucous membranes of the right and left Fallopian tubes were normal in appearance. They contained no fluid of any kind. The dilatation of the right was only at the peritoneal end. Both easily allowed very fine probes to pass, being patent throughout.

It would simply weary you were I minutely to go over again the symptoms, which you will find to be almost identical with those which I described in speaking of pelvic cellulitis. No doubt, in pelvic peritonitis we have to do with a much more grave affection, and the symptoms are proportionally more urgent. The more rapid onset of acute pain referred to some part or other of the pelvic cavity, the higher degree of inflammatory fever, and the greater prostration of the patient, seem to point to more serious mischief than simple inflammation of the pelvic cellular tissue. As with all peritoneal affections, we often find, from the commencement, most distressing nausea and vomiting; in consequence the pulse usually soon becomes small and quick. In most of the cases the symptoms referable to pressure upon adjoining organs and nerves, are much the same as those already mentioned in the preceding lecture. The dysuria is sometimes most violent, occasionally amounting to strangury, and sometimes even leading to complete retention; and the attacks of spasmodic pain, apparently in the sphincter at the orifice of the urethra, are occasionally so acute as to compel the patient to utter shriek after shriek in her agony. Those attacks of spasmodic pain seem to recur very frequently, but without any apparent periodicity, and they are usually greatly dreaded by the unfortunate sufferers. Tenesmus, too, is another of the most distressing of the painful symptoms present, and great pain in defæcation is almost unavoidable from the situation of the swelling and effusion. The bowels are sometimes confined, sometimes the reverse. It need scarcely be added that all appetite is usually lost, that frequently great thirst annoys the patient, and that she lies prostrate in bed, usually on her back, afraid even to stir, and unable to bear the lightest pressure on the wall of the abdomen, and that sleep is but seldom obtained without the use of anodynes. If the case progresses as it sometimes does, and the inflammation extends to the abdominal peritoneal lining membrane, the symptoms of general peritonitis rapidly supervene, and the patients usually succumb. If, on the other hand, the inflammation does not extend beyond the pelvic cavity, the symptoms become those of chronic pelvic peritonitis, which we will allude to presently.

PHYSICAL SIGNS.

In the first stage of pelvic peritonitis, by internal examination of the patient we may find nothing more than an increased sense of resistance in one or other of the peritoneal culs-de-sac, heat of the vagina, and tenderness on pressure; but very soon a tumour or swelling makes its appearance, and this sometimes so rapidly that the whole pelvis may seem to be choked up by a hard resisting mass, where, the day previously, almost nothing could be detected. The tumour so formed is usually very tender to the touch, and generally seems to enclose, as it were, the uterus within it, giving it that fixed and immobile condition which may be said to be one of the chief diagnostic points in this affection. At first the swelling is usually smooth and somewhat elastic, and but rarely occupies the whole pelvic cavity, and it generally displaces the uterus from its normal central position in some way or other. Occasionally we find the fundus ante- or retro-flexed, or the whole uterus pressed to the opposite side from that occupied by the tumour; but perhaps the most common displacement is that of the cervix forward and upward by accumulation of fluid in the posterior cul-de-sac,[1] though we sometimes notice in chronic cases that the fundus is bent over to the side of the pelvis affected, from contraction of the adhesions formed.

One point that you must particularly attend to, is the fact that you can always trace a distinct line of demarcation between the swelling and the cervix uteri. For the first two or three weeks no fluctuation can ordinarily be felt, the tumour, if examined by combined internal and abdominal palpation, being as hard and resisting as a billiard-ball. Of course, if pus forms at a later period, you may sometimes, though not invariably, detect the fluctuation — especially if the matter form in the posterior cul-de-sac—by examining by the rectum and vagina simultaneously. I must caution you against supposing that the existence of this affection can generally be detected without the necessity of a vaginal examination. On the contrary, it is but rarely that you can feel the tumour in the supra-pubic region, or more or less laterally in the abdomen ; and as pressure to any great extent on this region can seldom be endured in the early stages of the malady, it is almost invariably necessary to have recourse to internal exploration.

---

[1] *Vide* Bernutz et Goupil, *ut sup.* p. 8.

There are still two symptoms to be mentioned which have been declared to be almost invariable concomitants of the acute stage of the affection we have been considering ; and these are, leucorrheal discharge and metrorrhagia. Of the former I may say that there is usually some sort of viscid mucous or muco-purulent discharge from the os and vagina, probably due to the congestion of the mucous membrane of the cervix ; but as to the latter, my experience in the majority of cases is opposed to that of M. Bernutz. I have certainly seen it occur ; but in by far the greater number of cases, instead of there being metrorrhagia, the ordinary menstrual discharge is frequently found to be altogether arrested, or at least delayed in its appearance. Of this too I am certain, that on those few occasions in which I have noticed metrorrhagia, it has invariably seemed to do the patient at least temporary good.

PROGRESS AND TERMINATION.

The acute form of pelvic peritonitis may be said sometimes to begin and terminate as such, the tumour never going farther, but disappearing nearly as rapidly as it came. No doubt this is the exception, and not the rule ; and it is precisely those cases which are apt to give us the most trouble, as the patient, imagining herself cured because the pain has disappeared, is inclined to disregard the injunctions of the medical attendant, and to commit some act of indiscretion which may easily induce a relapse. Those relapses, too, are by no means uncommon at the menstrual period, the congestion of the organs in the pelvis on those occasions leading apparently to fresh additions to the tumour originally formed.

When such is the case—and even frequently without any such marked exacerbations—the disease may pass into the chronic form, a form which has been described by M. Bernutz as a distinct variety of the affection. Setting aside, however, the form of chronic pelvic peritonitis produced by tubercular deposit in some of the neighbouring organs, let us inquire what are the symptoms which point to the fact of the affection passing into a chronic stage, and these, we may at once say, are more negative than positive. The pain is now endurable, is not aggravated to the same extent by motion or pressure, and, what is better still, is not constant. The patient may recover her appetite and strength to some extent, and, as the pain has lulled, may be able to sleep without opiates. Still the symptoms pointing to a grave affection continue. As the tumour does not diminish in bulk, the sufferers still complain of dysuria and other symptoms indicating pressure on the bladder, or the alternate constipation and diarrhœa, with pain in defæcation, in those cases in which the tumour is in the posterior cul-de-sac.

The appetite may become very capricious, the patients readily taking some kinds of food, and loathing others. On account of the digestive derangement, with the long-continued exhaustion from confinement and pain, a condition of anæmia, with its accompaniments of vertigo, headache, palpitation, neuralgic pains, etc., is sooner or later developed. In some few chronic cases I have seen profuse leucorrhœa, with great irritation of the vagina and vulva, and menorrhagia so excessively prolonged as almost to destroy the already greatly exhausted patient. Gradually, however, the tumour may begin to disappear, no fresh relapses occurring at the monthly period; and, coincidently with the disappearance of the swelling, the patient may slowly return to her normal state of health, or have only a sense of weight about the pelvis, with occasional pain to indicate the existence of the adhesions which have been formed.

One sign has been spoken of as almost invariably to be found in these swellings when they have become chronic, and that is the existence of arterial pulsations, more or less strong, at their bases, a point which, though of no importance in diagnosis, it is yet necessary to attend to when surgical interference with the tumour is intended. Such pulsations, I am convinced, are by no means constant, and are certainly not exclusively confined to the disease we have been considering.

When the disease, however, instead of terminating in the favourable manner we have been imagining, goes on to the formation of an abscess, the symptoms change greatly in character, and the prognosis may be said to alter in a proportionate degree. There can be no doubt that such intra-peritoneal abscesses are incomparably more dangerous than those resulting from pelvic cellulitis, and even though the abscess be favourably situated for evacuation, we ought in these cases to have a constant dread of general peritonitis, and its almost invariably fatal issue, and we must use every means in our power to avert such an unfortunate result. No doubt, in many cases which terminate in suppuration, the abscesses are encysted within walls formed either by fibrinous deposit or by the matting together of two or more of the internal viscera; but even though such walls may be very useful in preventing the lighting up of a general inflammation, yet the constant production of matter from the newly-formed pyogenic membranes is very apt to lead to the exhaustion of the patient, especially if the pus has found an outlet, whether externally or internally. We must always bear in mind, too, that the walls, formed in the way we have spoken of, are sometimes not very strong, and that instances have occurred where rough handling, either through the abdominal parietes or per vaginam, has ruptured the fragile membranes, and caused the exact result we ought so carefully to avoid.

It would be useless to recapitulate the symptoms produced by those intra-peritoneal abscesses. I have only to refer you to the lecture on cellulitis, where you will find an exact description of all that occurs. Still, we ought to recollect that the nature of the affection renders those symptoms considerably more severe and exhausting, that the patient is placed in much greater jeopardy than she would be from suppuration in the pelvic cellular tissue, and also that the formation of matter is likely to go on for a much longer time before the pus finds an outlet. This you will easily understand if you remember the peculiarly resisting nature of the serous membrane.

You will recollect that in pelvic cellulitis I spoke of the pus most frequently finding its way to the surface by one or other of the iliac fossæ, a point which merely coincides with the most common seat of the formation of pelvic cellular abscesses. But, as you may readily comprehend, it is nearly impossible, from anatomical reasons, that such should be the most common point of outlet in the cases we are considering at present. The fact is that the perforation takes place into the most easily perforable viscus, which in the present instance is usually found to be the sigmoid flexure or rectum. Very seldom does it occur through the bladder, and even more rarely through the uterus or vagina.

Etiology.

In discussing the causation of the cases of pelvic peritonitis which come under the notice of the accoucheur or gynæcologist, we have constantly to bear in mind that it is only a few years since attempts began to be made to differentiate it from other affections of a somewhat similar nature occurring within the pelvis. To take up, for instance, only the puerperal variety at present, so much confusion existed as to the nature of the malady, that in a vast majority of cases, if not in all, the patients attacked with pelvic peritonitis after delivery were supposed to be labouring either under metritis, or again, in the bad cases, under one or other of the manifold forms of puerperal fever. No doubt in all cases of puerperal fever we have pelvic peritonitis, but this is, of course, only one of the many local manifestations of a constitutional state. Those cases, on the other hand, occurring in the puerperal female, from some traumatic influence during labour, or from some imprudence after it, and without the co-existence of what is known as puerperal fever, we can usually refer to some given cause, and the element of contagion does not enter into our speculations on that subject. Thus, in the case I have given at p. 99, we see at once that the bursting of a small intra-ovarian abscess during a lingering labour gave rise to the peritonitis, which, by extending to the abdominal serous membrane, caused the death of the patient.

If we were to attempt, then, to make any classification of cases of pelvic peritonitis from their causation, we would begin at once by establishing a puerperal variety—just as Bernutz does[1]—and quite apart from puerperal fever. The truth is, however, that, though perhaps nearly half the cases would be found to come under this head, yet we can seldom be quite sure of the primary disease which has given rise to the pelvic peritonitis, as to whether that primary disease is of uterine, tubal, or ovarian origin. Some authors, it is true, do not seem to have much doubt on this point. Thus Aran, in his *Leçons sur les Maladies de l'Utérus*, most distinctly gives it as his opinion that the primary affection is almost invariably ovarian or tubal. Thus, at page 673, he says, "Perhaps inflammation of the uterus, and principally endometritis, plays some part in the invasion of peri-uterine organs by inflammation, independently of any alteration in the ovary or tube. This I can say, that I never met with any fact of this kind, and am not yet convinced by any known fact which might seem to support an opposite opinion. It has not been shown to my satisfaction that the ovaries and tubes have been examined with sufficient care. Too frequently the examination has been made months, nay years, after the attack, when any traces of inflammation of these organs may have disappeared long before." Again, at page 679 of the same book, we find him making no less positive statements. "When the appendages of the uterus are affected only on one side," he says, "it is from these appendages, as from a centre, that the inflammatory changes extend, and the situation of the diseased *ovary* or *tube* fixes definitely the site of the tumour in front, behind, or on either side of the uterus. But if, as in a number of cases, the appendages are attacked on both sides at once, the pathological changes soon meet in the mesial line, most frequently behind, but sometimes in front of, the uterus, surrounding that organ in a kind of ring which is more or less complete." From these quotations, and from many other passages of the work in which the same idea is reiterated, it will be seen that M. Aran makes the uterus play a very subordinate part in the development of pelvic peritonitis. But we can scarcely hesitate to believe that in many of the cases the uterus is the real starting-point of the inflammation. Indeed, it has lately been stated that the extension of endometritis along the tubes is *the* most common cause both of the puerperal and non-puerperal varieties of the malady we are discussing. However true this may be of the puerperal and gonorrhœal forms of pelvic peritonitis, I should be disposed almost entirely to disbelieve in the frequent causation of other varieties in this way. I have seen pelvic peritonitis so rapidly developed after the introduction of a tangle-tent, the use of a cutting or burning instrument to the uterus, or even after the use of the sound, that no inflammation in the mucous lining membrane of the interior of the womb could have had time to spread through the tubes to the peritoneum.

---

[1] M. Bernutz, out of 99 cases, gives 44 as puerperal, counting among that number, and very justly, 8 cases which came on after abortion.

As to the determining cause of the inflammation in this variety of pelvic peritonitis, I could not do better than quote the statistics of M. Bernutz, who, out of 18 cases, found that

4 arose from difficult parturition,
3 „ cold,
9 „ too early rising after confinement,
1 „ fatigue,
1 „ venereal excess;

and M'Clintock observes the same fact as to the frequency of its origin from too early rising, as he mentions that Dr. Heyerdahl of Christiania had informed him, that so frequently were patients attacked with pelvic cellulitis after leaving the Maternity Hospital in that city, that the managers had felt themselves compelled to lengthen the duration of their residence in hospital, to prevent, if possible, these accidents in the future.

There are still two points which seem worthy of note before we leave this variety of pelvic inflammation, and those are the insidious manner in which the attacks sometimes come on, and the frequency of the formation of matter in such cases. With reference to the first, M'Clintock[1] makes the admirable observation that in all cases of bad recovery from childbed, we should carefully examine the iliac regions day by day, as he has thereby frequently been enabled to detect latent inflammation when all the other symptoms indicated the complete subsidence of morbid action.

With reference to the second point, though I have no statistics to offer you, yet I am convinced, from personal observation, that not only is suppuration more common in this than in any other variety of pelvic peritonitis, but also that the matter forms much more rapidly. In a case arising from exposure to a cold wind after an abortion, the matter was completely matured, and the abscess ready for opening on the seventh day after the existence of a swelling was made out.

As this case presents many interesting features, I am tempted to give it more in detail :—

Margaret H., æt. 39, married, and has had four children ; was admitted into Ward XII., Royal Infirmary, on March 6, 1869, on account of hemorrhage after an abortion which had occurred four weeks previously. The os and cervix were dilated by sponge-tents, and ergot of rye given internally in drachm doses of the liquid extract thrice daily. The bleeding ceased, and she was about to leave the hospital on March 25, when she was seized with a shivering fit after lying outside her bed with the adjacent window open. The pulse and temperature rose very considerably ; she perspired profusely after the shivering, and became delirious. There was also a good deal of pain above the pubis. The next day, on vaginal examination, there was fulness and tenderness in the posterior cul-de-sac, but nothing more. Ordered poultices and opium.

On the 29th the pain was not quite so severe, and was relieved by her drawing up her knees, and thus removing the tension of the abdominal walls from a slightly tympanitic abdomen. Immediately above the pubis a somewhat hard and very tender swelling could be felt, but its limits could not be made out on account of the pain. Vaginal examination proved the existence of a swelling in the posterior cul-de-sac, pressing the uterus forward against the pubis, and, by combined internal and external palpation, showed it to be part of the same swelling that was felt above the pubis. The pulse was 120 per minute, she was perspiring very much, but the pain was less.

---

[1] *Loco citato.* He is, of course, speaking of cellulitis, the only variety of pelvic inflammation he recognises, but the observation is equally valuable with reference to peritonitis. He might have added that, in many such suspicious cases, it is absolutely necessary to have recourse to frequent internal examinations.

On the 5th of April the swelling seemed softer, and apparently indented slightly on pressure. An exploring-needle was introduced, and, as pus escaped through it, a tenotomy-knife was at once employed to make an incision in the most prominent part of the swelling. The cut was immediately behind the cervix, was nearly an inch in length, and through it there escaped, very freely, about a pint and a half of very fœtid matter. *On introducing my finger through the opening, I felt the peritoneal recto-vaginal fold below.*

On April 7th the pulse was slower and fallen; there was little pain, but she had not slept well, and was still perspiring very much. She was ordered citrate of quinine and lemon-juice.

On the 9th she had decidedly improved, the pulse was 102, there was very little pain, and she could keep the legs straight out in bed. There was still tenderness on pressure on the iliac fossa. The opening, internally, was closing, but the uterus was fixed and slightly anteflexed, and there was fulness and tenderness in the right lateral and posterior culs-de-sac.

On the 16th there was no pain on pressure in the iliac or supra-pubic regions, but the cervix uteri, though more movable, cannot be pressed without causing a shooting pain through the abdomen. She continued to improve until the 25th, when she had an attack of an epileptiform character, to which, it appears, she had been liable. After the attacks she feels very drowsy, and has a vacant, expressionless stare, and does not answer questions put to her correctly. However, after this attack, she steadily gained ground, and was dismissed on May 1st, declaring herself quite well, though the uterus was still pretty immovable and anteflexed, but somewhat laterally to the left. The wound was quite healed up, and there was no discharge.

I have dwelt, perhaps, at too great length, upon this interesting variety of pelvic peritoneal inflammation, and we must now hasten on to the next most important form, the menstrual, under which variety Bernutz includes 20 out of his 99 cases. Of course, in the majority of such cases, the inflammation arises from the sudden suppression of the menstrual flux, whether that be caused by cold, by any mental emotion, or by any injury during that period. In almost all such cases, which terminate favourably, it will be nearly impossible for us to detect the part primarily affected, although, as we believe, there must be some starting-point or other for the inflammatory action. In the following case I suspected the right ovary to be the *origo mali* :—

Mrs. G., from Forfarshire, was suddenly attacked, about the second day after the commencement of the menstrual period, with most violent pain in the right iliac region, and when I saw her, a few hours after, she was labouring under symptoms referable to pelvic peritoneal inflammation. There was nothing to be made out of external examination, and on account of the menstrual flow I made at the time no internal exploration ; but the next day I discovered by palpation a small and very tender swelling over the right supra-pubic region. This rapidly increased in size until it reached about half-way to the umbilicus, at the same time extending outward toward the anterior superior spine of the ilium. Internal examination (the period ceased the same day) discovered the uterus nearly immobile in the pelvis, its fundus anteflexed and at the same time drawn over to the right, and the cervix high up and looking towards the left. There was great tenderness in the right lateral and posterior cul-de-sac, and a feeling of fulness, but the left side was quite free. Any pressure on the cervix at once caused a darting pain in the seat of the tumour to be felt through the abdominal walls. The bladder and rectum unaffected. Pain very excruciating, and only relieved by subcutaneous injection of morphia.[1] The tumour increased for a few days, and the pain was aggravated, and so severe as to require almost continual use of morphia. The ordinary constitutional symptoms of peritonitis were present, and vomiting set in and persisted for about twenty-four hours, when it seemed to yield to small doses of dilute hydrocyanic acid. The pulse was small and rapid at this time, keeping at about 120 beats per minute. About the fifth day, and coincidently with the subsidence of the vomiting, the pain became more endurable, the pulse sank to about 100, and the tension of the abdominal walls and tympanitis diminished. The tumour, though still very tender to the touch, could then be felt from without to be distinctly circumscribed, not extending more than three inches beyond the symphysis pubis. Percussion over it elicited only a tympanitic sound, except just above the pubis, where it was also most tender to pressure. From about the fifth or sixth day from the commencement of the attack this lady did very well, although the pain remained very obstinate, and was always worst down the front and inner side of the thigh. Still, it was not relieved in any degree by keeping the thigh flexed. The swelling began slowly to disappear, and on internal examination, about the 12th day of her illness, the uterus was found to have regained some of its mobility, though pressure on its cervix, or up against the fundus, still caused the violent shooting pains already described. The ante-lateral flexion remained the same.

On the 16th day from the commencement of the attack, I found that the swelling was scarcely to be felt through the abdominal wall, except by deep pressure into the pelvis, which still gave the patient very great pain. The uterus still much the same, except that its mobility was undoubtedly greater. She complained of pain in micturition. She was able to sleep well, but still requires the injection of morphia at bedtime to keep her free from pain. She continued slowly to improve, but still complained of pain in the bladder, and about the 20th of April pus appeared in the bladder in pretty large quantity. Most obstinate nausea and sickness came on about the end of the month, and resisted all the various methods of remedies mentioned in the section on treatment ; and she had ultimately to cease taking any kind of food or liquid by the mouth, being nourished by nutritive enemata.[2]

---

[1] I began with a third of a grain of the bimeconate.

[2] The treatment in this case consisted in giving her opiates, chiefly subcutaneously, and in very large doses—as she was accustomed to take morphia—and constant poulticing at the commencement of her illness. About the 5th or 6th day I put her on mercurial suppositories, which I stopped only after the gums became slightly affected. After the subsidence of the violent pain, I used the

The reasons why I suspected the right ovary to be the original cause of the inflammation in this case, are mainly these :—1st, She stated that she had had four similar attacks at periodical intervals of two years, and that on each of these occasions she had the same violent pain, chiefly in the right side and leg ; and 2dly, Because on internal examination, after the subsidence of all inflammatory action, I discovered an enlargement to the right of the uterus tender to the touch, and in the position of the right ovary.

It may, however, be at once stated that without an autopsy we never could be positively certain of the real cause of the attack, and even not always then, as the traces of the original disease may either have completely disappeared or have become merged in those of the secondary affection.

Of the gonorrhœal variety, and of its causation, I can say but little from personal observation, never having seen it except in one case, and that a most formidable one, though it did not end fatally ; but Bernutz concludes, from his observations in the Lourcine hospital, that it is a very common variety indeed, and that pelvic peritonitis from this cause in the female is not only the analogue of orchitis in the male, but that it occurs in about the same proportion as does that extension of gonorrhœal inflammation in men. The traumatic forms of pelvic peritonitis are generally due either to some imprudence on the part of the patient, or to some want of caution on that of the physician, although there are cases in which neither would seem deserving of blame. Thus I remember one case in which pelvic peritonitis was apparently produced by the passing of a uterine sound to measure the cavity. The peritonitis in this case—a weak exhausted female—spread rapidly to the abdominal serous membrane, and proved fatal in a few days. At the autopsy no apparent cause of the development of the peritonitis could be found : there was no endometritis or inflammation in the Fallopian tubes. Among other determining causes of the traumatic forms, I may mention the use of tangle-tents to dilate the cervix, several examples of pelvic peritonitis arising in this way having lately come under my notice. Cutting operations on the uterus, the excision of polypi, the application of solid nitrate of silver to the interior of the cervix, the wearing of an intra-uterine pessary, have all proved the determining causes of cases which have been treated by me ; and among

blistering fluid and liniment of iodine over the abdomen. She had no medicine by the mouth except the hydrocyanic acid, as everything she took in that way made her vomit.

others which have been mentioned, and which we can readily conceive may have produced the inflammation, we find recorded venereal excesses, injections of fluid into the uterine cavity, and chancres on the cervix.

DIAGNOSIS.

To attempt the differentiation of the affection at present under consideration from the many diseases with which it is possible the student or young practitioner might confound it, would simply lead us to a repetition of the principal signs and symptoms of the disease. It is only too true, unfortunately, that in the present state of gynæcological knowledge, we cannot point out for your guidance any one pathognomonic feature to distinguish it, for example, from the closely allied affection, pelvic cellulitis. But still it may be said to be equally true that, to many who are accustomed to treat the diseases of females, the whole of the features of the case—the *tout ensemble*—present to their minds many points of sufficient distinctness to enable them, in the great majority of cases, to form a correct diagnosis.

As I cannot, then, point out to you any one feature so salient as to guide us by its existence to immediately separate this from any other disease, it would be perhaps as well to abstain from attempting to do so at all, and, in fact, we may see in an able work,[1] only recently published, how completely such an experiment has broken down. Dr. Thomas has drawn up a long series of differential points, of which it may be said, that in some cases his statements would answer for both complaints, and that in many others they might be reversed without impropriety.

Let me, however, in a few words, direct your attention to those points which, in many cases, may lead us to a pretty accurate opinion as to their real nature.

DIAGNOSIS FROM PELVIC CELLULITIS.

The greater gravity of the symptoms in many cases of pelvic peritonitis cannot be disputed, and yet it would not be proper to make this a differential point, as I have seen as severe pain and other grave symptoms of inflammation in cases of pelvic cellulitis, as I have in cases in which I had every reason to suppose the serous membrane was alone affected; while, on the other hand, I have been frequently convinced of the existence of sero-adhesive pelvic peritonitis, without the patient presenting any symptoms that would lead us to suspect inflammation in any part of the peritoneum. No doubt, as I have already said, the two affections are often present coincidently, and, in fact, I have little hesitation in saying that I believe cases of pelvic cellulitis are almost invariably accompanied by some slight peritonitis. It is on the physical signs, then, that we must chiefly rely in our attempts at a differentiation of the two diseases; and certainly we can confidently say that there are few more difficult points in physical diagnosis than this, and the difficulty is in many cases greatly increased by the fact that, unless under chloroform, the combined internal and external manipulation, necessary to satisfy us, is usually at first too painful for the patient.

---

[1] T. Gaillard Thomas: *A Practical Treatise on the Diseases of Women*, p. 375. Philadelphia, 1868.

In by far the greater majority of cases, then, of pelvic cellulitis, you will find, on internal examination, that the fulness or swelling is at one or other side of the uterus, and that it is only very rarely that the *whole* roof of the pelvis seems blocked up by the hard stony mass so common in cases of pelvic peritonitis.[1] External examination reveals the tumour, in most cases of cellulitis, in one or other of the iliac fossæ, and apparently closely connected to the iliac bones; while the tumour, if felt at all through the abdominal walls in peritonitis, is usually more in the mesial line, or, if situated laterally, does not, by any means, seem so intimately blended with the bones. It cannot, however, be said, as one author has recently maintained, that it is an error to suppose that pelvic cellulitis ever could produce tumours rising in the mesial line to fill as much space as the uterus at the fourth month of gestation. I saw, recently, a case in which abscess in the recto-vaginal cellular tissue[2] had pushed an enlarged uterus so much upwards and forwards as to give the appearance of a supra-pubic tumour fully as large as that we have spoken of, but such a case must be exceptional. An important point in the diagnosis of pelvic cellulitis, as well as of pelvic peritonitis, is the immobility or fixation of the uterus—an immobility which, in many cases of peritonitis in which it is fixed all round, may be said to be absolute, while in cellulitis it rarely or never happens that the fixation is so complete. As the immobility arises, to a great extent, from the presence of adhesive bands uniting the womb to other organs or viscera, and not alone from the presence of what may be called a tumour in the pelvis, you can easily conceive why this should be the case, as we have already pointed out what we consider to be the main distinction, as to situation, between the inflammatory masses in the two affections. In pelvic cellulitis the uterus is usually pushed to the opposite side of the pelvis from that occupied by the phlegmon; while, in some cases of peritonitis, the body and fundus of the womb are so completely lost or enveloped amidst the exudation, that it is only by the use of the sound—when such a use is justifiable—that we can determine the real position of the uterus in the pelvis. I have already pointed out, at p. 102, the more common forms of displacement of the uterus which those tumours originate.

---

[1] I put little or no value on the height of the tumour in the pelvis, as I have seen cases of intra-peritoneal effusions or abscesses quite as low as any extra-peritoneal ones.

[2] The abscess was evacuated through the posterior wall of the vagina, and, as soon as this was done, the tumour above the pubis disappeared. It was proved to be cellular by the fact that I felt, through the opening I made, the peritoneal reduplication behind the uterus, and below, my finger reached, in the cavity of the abscess, nearly to the anus.

There is one point which every gynæcologist can corroborate, and that is the retraction of the thigh in cases in which the cellular tissue round the psoas and iliacus muscles is involved, and the relief of the pain which the flexion of the thigh produces. I have frequently noticed, in cases of pelvic peritonitis, that the flexed position of the thigh either did not relieve the pain, or did so only when both were raised, by removing the tension of the abdominal muscles; of course the anatomical explanation of this fact is very simple.

One other sign has been alluded to by Thomas as being of importance in assisting our diagnosis, and that is, the greater frequency of suppuration in cases of cellulitis than of peritonitis. I am not prepared to make any statement either for or against this assertion; but of this I am certain, that the puerperal form of the two diseases is much more likely to end in the formation of an abscess than those cases arising at any other time. It will thus be seen that our diagnosis cannot be by any means always positive in regard to those two distinct forms of inflammation within the pelvis; but though cases may occur now and again which might puzzle the most expert practitioner, yet, as I have said, in the majority we can, by a careful consideration of all the signs and symptoms, usually arrive at a pretty accurate opinion.

DIAGNOSIS FROM PELVIC HEMATOCELE.

The difficulty which we experience in differentiating the two forms of pelvic inflammation we have just been considering is frequently diminished when we have to do with a recent case of intra- or extra-peritoneal pelvic hemorrhage. In such the diagnosis is usually easy, and is generally founded on the suddenness of the invasion of the symptoms, with the marked rapidity of formation of the tumour as compared with that in the inflammatory affection, and the feeling of fluctuation so generally found at first in the hemorrhage. Besides, in the great majority of cases, these extravasations of blood occur during a menstrual period, or during the continuance of a metrorrhagia, and if the hemorrhage has been great, we have the anemic state of the patient so induced as an additional element of certainty in diagnosis.

In chronic cases of pelvic hematocele, on the other hand, when we have not seen the patient at the commencement of her illness, the difficulty is greatly enhanced, and we must then usually be guided by the history. The character of the swelling is generally of little or no use in distinguishing the affections, and in fact, if we think it necessary, it is frequently justifiable in such cases to have recourse to the exploring-needle.

I do not now intend to trouble you with any further attempts at differentiating this affection from other diseases or conditions with which it might possibly be confounded. In my opinion such attempts are often unnecessary, especially in lectures like those I am now delivering, as the other morbid states for which you might mistake it, either have been, or will be, fully treated of, and the signs and symptoms of each disease should, if properly understood by the student, be sufficient to distinguish the special affection from every other.

PROGNOSIS.

What I have to say under this head may be easily contained in a very few sentences. The truth is, the prognosis depends upon so many circumstances, varying so infinitely in each individual case, that no general rule can be laid down for our guidance; but still there are one or two points in regard to it which we ought not to omit mentioning.

In a severe case of puerperal pelvic peritonitis the prognosis is assuredly graver than in almost any other form of the complaint, the weakened state of the female at the time not permitting her easily to bear any inflammation in the serous membrane; and, besides, the tendency of the inflammatory action to spread to the abdominal peritoneum is greater, and, as we have already observed, the formation of an abscess is more common in this than in any other form.

I do not think that there is any special observation to be made as to difference in the prognosis in the other forms of this pelvic inflammation; but I must call to your minds the important fact that, until the first menstrual period is passed, your prognosis ought to be most guarded, as the recurrence of that period is very apt to set up fresh mischief, and throw the patient into the same state as in the first attack. These exacerbations of the original evil are most trying to the patience both of physician and patient; and they may even go on indefinitely, and ultimately prove the cause of death. In others, the condition induced is that of chronic tuberculosis, which, of course, when once begun, seldom ends but in one way.

The adhesions which remain when the inflammation has subsided are not usually of so much consequence as we might imagine. To some they seem to give no trouble at all; while others merely suffer from vague uneasiness, a sensation of dragging down, or of weight in the pelvis, and that not often constantly, but usually only when fatigued. Occasionally, however, it is otherwise, and the patients have to endure all the pains and discomforts which an ante- or retroflexed uterus may produce. We cannot say that there is any rule to guide us in reference to the future sterility or productiveness of those who have such adhesions. The remarks made on that subject in the last chapter are equally applicable here, but with this addition, that if they do become pregnant, the patients are much more likely to miscarry, and to suffer more in their pregnancies, than would be the case with those who had only laboured under an uncomplicated cellulitis. The danger from the formation of an intraperitoneal abscess is obviously so much greater than from a collection of matter in the cellular tissue alone, that I need not do more than draw your attention to it; but I have only to repeat that we have no reliable statistics either as to the frequency of the formation of matter in this affection, or in reference to the proportion of cases in which such abscesses prove fatal.

TREATMENT.

On the subject of treatment of cases of pelvic peritonitis I have but little to add to what I have said in the preceding lecture, and I must refer you to that lecture on pelvic cellulitis for the more minute details under this head. True, the one affection is usually much more severe than the other, and frequently necessitates much more active interference. Still the principles of treatment are the same in both.

At first, in the acute stage, it is necessary to be decidedly antiphlogistic; leeching, according to the rules and by the method laid down at pp. 79 *et seq.*, is generally imperatively required, and almost invariably had recourse to. Of course the amount to be taken from your patient is regulated by her general strength, and according to the variety of the disease she is suffering from, puerperal patients being seldom able to bear much additional loss of blood.

But if the local detraction of blood is required more in pelvic peritonitis than in the simple form of pelvic inflammation, the use of opiates may be said to be even still more imperatively demanded. The continued and severe pain, the obstinate vomiting, and the early exhaustion of the patient in consequence of the retching and straining, force us to keep her as much as possible under the influence of narcotics, and the most powerful of those remedies are usually necessitated. Opium and morphia suppositories, of the strength of a third of a grain and upwards, repeated at frequent intervals, and the subcutaneous injection of strong solutions of morphia, are usually our best forms for the administration of that powerful narcotic, as the nausea and sickness often prevent us giving anything but ice by the mouth. Other anodynes may be used, and sometimes are required, but I must confess to having little confidence in their pain-destroying properties in such acute affections as inflammation of the serous membrane in the pelvis. I need say little more about the treatment of this affection in its acute stage, except that besides the general local means already indicated, I have recourse in all cases to constant poulticing or stuping, usually covering the poultices with some soothing tincture, liniment, or oil. The French, in cases in which there is much tympanitis, recommend the application of ice-bags over the abdomen; but I must declare my prepossession in favour of the older method of using heat and moisture combined in every case of peritoneal inflammation. Mercury in any shape or form I must emphatically condemn; nor do I think that, in the first week or ten days of the acute stage, much good is to be obtained from acting on the bowels by purgatives, though occasionally you require, by means of some simple enema, to remove any hard or impacted fæcal masses, which, by accumulating in the sigmoid flexure or rectum, may be pressing injuriously on the tender swelling in the pelvis, and thus aggravating the sufferer's pain.

The vomiting is another of those distressing symptoms which frequently requires our interference, and I must confess very often baffles all the ingenuity and skill of the medical attendant, and frequently proves so exhausting as to destroy our patient. Small doses of dilute hydrocyanic acid, bismuth in powder or solution, oxalate of cerium, charcoal; cherry-laurel, or lime water; small doses of opium, blisters to the epigastrium, the spinal ice-bag, and the constant use of ice, may all be tried in rapid succession, and each successive remedy prove as futile as the one preceding. Sometimes we are obliged to abstain from giving food or medicine of any kind by the mouth, and trust to nutritive enemata solely, though in a case of pelvic peritonitis the necessity which should induce us to do so must be dire indeed, as one of the main objects of our treatment is to keep the lower bowel as quiet as possible.

When the active symptoms have subsided, and the complaint has passed into the chronic stage, the treatment will vary according to whether we have an abscess formed or not. The general treatment of a case of the kind, ending in suppuration, has been already fully enough gone into, and I have now only to make a few remarks as to the expediency or not of opening such intra-peritoneal abscesses when formed.

Most gynæcologists seem inclined to believe that it is only in exceptional cases that we ought to interfere with the knife or trocar, and advocate an expectant treatment; but I am rather inclined to reverse matters, and make those the rare cases in which we ought not to interfere. Of course I am only speaking of such abscesses as we can accurately diagnose, not of the many obscure cases in which we cannot detect the matter, even though convinced of its existence.

It must be rare indeed for an intra-peritoneal abscess to point at any part of the abdominal walls, and it is usually through the posterior wall of the vagina that we have to evacuate them. The most common point for artificial opening is immediately behind the cervix uteri and into Douglas's space. Some prefer a trocar for the purpose, others use a guarded bistoury or tenotomy-knife, and, generally, I think it is preferable to use the knife in order to have as free an escape for the matter as possible. The trocar no doubt avoids, to a great extent, the danger of hemorrhage which the knife may cause, but usually, if there is any bleeding of consequence, we can restrain it by ice, and do not require to plug the vagina for it. Usually, too, we can feel beforehand any arterial pulsations in the vaginal wall, and thus avoid them.

I cannot agree with those who recommend that the cavity of the abscess should be washed out by injections after it is evacuated. The matter usually escapes very freely, and all we have to do is to keep open the incision made in the vaginal wall, and for this purpose we merely require to pass the point of the finger through it once or twice. I believe that the injection of fluids, whether simple or medicated, into the cyst, may readily give rise to a renewed attack of inflammation, or, by rupturing the fragile wall of the cavity, even produce a fatal general peritonitis. The abscess usually evacuates itself completely in a week or so, and the clean cut made by the knife heals up without giving any further trouble.

In cases of chronic pelvic peritonitis which have not ended in the formation of matter, but in which the product and effect of the inflammatory action are long in disappearing, we have to adopt a very different mode of treatment from that of the acute stage. The patient's strength and spirits require to be supported by all the means at our disposal, and a judicious regimenal and dietetic treatment is absolutely necessary; but, besides, we must take great care to prevent, so far as we can, any relapses, either induced by the return of the monthly period, or by imprudence on the patient's part. A succession of "flying" blisters, either by the old-fashioned plasters, or by the use of the more recent solutions of cantharidine, is certainly one of the most valuable means at our disposal; and should the cantharides give rise to any pain in the bladder, the liniment of iodine or solid nitrate of silver will prove very efficient vesicants. The employment of iodide of potassium, or of mercurial inunctions, so far as I have been able to observe, has not been of any particular service. And our most useful tonics are generally quinine, the iodide of iron, and the milder vegetable bitters. When the chronic form is kept up by tubercular deposit, the treatment is that of general tuberculosis elsewhere; but those cases invariably present the very darkest prospects.

Before quitting the treatment of this interesting affection, I cannot help quoting a passage from Bernutz:—"I ought to add," he says, "that I have found conium a most valuable special narcotic to the genital organs. I give it so as just to produce slight derangement and a kind of hallucination. I have, however, seen many cases get quite well without there having been any apparent effect from the administration of the drug; so that I cannot feel certain that the beneficial results which seemed to follow its employment were really due to that."

LECTURE VII.

PERI-UTERINE OR PELVIC HEMATOCELE OR HEMATOMA.

HISTORY.

IT is my intention to-day, Gentlemen, to describe another disease to which the cellular tissue of the pelvis, and the serous investment of its contained organs, is liable, and this affection, though still less known than the pelvic inflammations, because less frequent, is well worthy of your most careful study, for this reason, if for no other, that it is relatively more fatal than pelvic cellulitis or peritonitis. In the affection, too, which I am to speak of in the present lecture, there is an effusion into the tissue filling up the angles and spaces between the layers of the pelvic fascia, or into the peritoneal cavity; but here the effusion consists, not of serum or other inflammatory products, but of blood from a ruptured blood-vessel. This pelvic hematoma or pelvic hematocele is, as I have observed, far from being as common as pelvic inflammation; but it is not by any means such a rare disease as you might be led to suppose from finding that there is almost no notice taken of its occurrence in the whole wide range of modern English obstetric literature; and I feel assured that if any of you in after years have occasion to see much of female diseases, you will not have been very long in practice ere you meet with one or more examples of this affection.

The first case of pelvic hematocele where I recognised the real nature of the disease, occurred, many years ago now, in the person of a patient whom I saw in consultation with my friend Dr. Baird of Linlithgow. The lady was exposed to cold by sitting on the grass when she was menstruating; she had a fit of shivering on going home, which lasted some time, and was succeeded by sudden and severe pain in the region of the womb. Some days subsequently, on making a vaginal examination, a solid-like tumour was felt behind the uterus, stretching upwards towards the cavity of the abdomen. I thought it was a case of acute pelvic cellulitis, and it was treated as such for a time by antiphlogistics. Between two and three weeks having elapsed, and the tumour not having become diminished in size, I believed that it was time to puncture it, imagining that suppuration must have taken place, though perhaps so deeply seated as not to give rise to a distinct feeling of fluctuation. I therefore made an incision into the tumour through the roof of the vagina, but, instead of pus, there came out masses of old coagulated blood, partially broken down and disintegrated. There was, indeed, a slight admixture of purulent fluid, for inflammation had occurred secondarily around the infiltrated part; but the great bulk of the evacuated matter consisted of the *débris* of blood-clots; and after these had all been evacuated, the cavity speedily closed up, and the patient made a good recovery.

I did not then properly understand all the phenomena of the case, and thought it to be simply an aberrant form of pelvic cellulitis; but since I saw that case I have met with a considerable number of others, and I have now no doubt that it is an altogether independent form of disease. We had a fatal case of it in the hospital five years ago; and as this case is a very instructive one, perhaps you will allow me to read the history of it, which has been preserved in the hospital records. I regret that this history is so imperfect, and especially in relation to the post-mortem appearances, as taken down by the clinical clerk.

"A. W., aged 42, married. Admitted April 9th, 1854. Has generally menstruated two days every month since the first commencement of the catamenia in adolescence. The discharge was never in large quantity, and was generally unattended with pain. Gave birth to a child four and a half years ago, and for four years she has suffered from prolapsus uteri and profuse leucorrhœa. During the first two years she used to keep the uterus reduced by wearing a globular wooden pessary, but during the last two years she has used nothing at all, the womb usually being prolapsed most of the day, and she reduces it herself on going to bed. She never had real pain during menstruation until the last period, which was protracted four or five days longer than usual. The pain then felt was deeply seated in the lower part of the abdomen, and was so severe as to confine her almost constantly to bed. On the day after the menstrual discharge ceased she felt cold, and in the evening shivered a little; but no feverish symptoms followed, and it was only the continuance of the acute pelvic pain that caused her to seek admission. Since the commencement of the pain the uterus has not appeared in its usual prolapsed form externally. The patient is pale and spiritless, has a cool moist skin, a slightly-furred tongue, no great appetite, and no thirst. Pulse 80, soft. Complains of pain deep in the pelvis, but states that it is not nearly so severe as it had been for three days before. No pain in thighs or back.

"On vaginal examination a globular swelling is met with in the posterior wall of the vagina, not very tender, nor pitting upon pressure. The cervix uteri is very small, and lies immediately behind the symphysis pubis. The os is small, and the lips are very small and oedematous. The uteris feels fixed by this tumour, which extends from the posterior part of it down to within an inch and a half of the vaginal orifice. The finger can be easily pushed upwards on each side of it in the direction of the broad ligaments, so that by this means it can be readily ascertained that this swelling has no lateral attachments to the sides of the pelvis, but is merely situated between the rectum and the vagina. This latter point is confirmed by recto-vaginal examination made by the fore and middle fingers of the right hand, for by this means the lower segment of the tumour is embraced between the two fingers. There is no fulness in either iliac region. Urine of sp. gr. 1012, alkaline; contains triple phosphates, and much albumen. To have five-grain doses of bromide of potassium thrice a-day.

"April 12.—To stop bromide. ℞ Infus. gentianæ ℥vij., tinct. gentian. ℥j., corrosiv. sublim. gr. ⅙. M. Sumat ℥j. ter in dies.

"15th.—Gums are red, tender, and a little spongy; breath fetid; slight salivation. Omit medicine. To have a gallic acid gargle.

"21st.—The œdematous state of the vaginal tumour has now gone, but the tumour has not decreased in size. Dr. Simpson introduced an exploring-needle into the tumour, and on withdrawing the canula found it filled with a bloody-looking matter with minute clots of blood. On microscopical examination this fluid was found to consist of a dark-brown fluid containing a very few blood-discs in various stages of disintegration, and also about an equal number of hyaline or pyoid bodies, but no pus-globules. To have five-grain doses of bromide of potassium.

"26th.—Yesternight she had a slight attack of tympanitis without tenderness, and of vomiting. Hot turpentine fomentations, a turpentine enema, and an opiate by the mouth, relieved these symptoms, and the patient slept well. To-day the sickness and vomiting have returned with great severity, so that the little fluid aliment which the patient occasionally takes is almost immediately vomited. Tongue covered in the centre with a brown fur; margins clean and moderately moist. Skin warm and moist. There is no abdominal tenderness, and patient feels only a dull uneasiness in the region of the pelvis. Vagina is hot; no increase in size of tumour, but it is softer than before, and yields an indistinct feeling of fluctuation. Pulse 90. Twelve leeches to be applied over the abdomen; and a grain of opium to be taken every five hours.

"27th.—Vomiting almost incessantly. Had about three hours' sleep during the night. To have ice and brandy, with hydrocyanic acid mixture, and a blister to the abdomen. *Vespere.*—Unabated retching and vomiting; vomited matter contains a good deal of bile; pulse 96. Vagina is tender, and so hot that it is painful to retain the finger a few seconds. Fluctuation much more distinct in tumour. Apply eight leeches round the anus, and continue the treatment pursued in the morning.

"28th.—Retching less, but still severe. Skin keeps cool and moist; pulse 90; tongue not much furred. There were drawn off from the vaginal tumour, by means of a trocar and canula, five and a half ounces of a dark-brown fluid, containing a very few minute clots of blood, and patches of lymph or pus. Its odour was very fetid. On microscopical examination it is found to contain pus-globules in large quantity, puckered and irregular blood-globules, granular matter, and small masses of aggregated particles, sometimes of a semi-crystalline form and of a deep red colour (Hæmatin?) Stop all medicine, and use ice and brandy.

"29th.—More fluid being still in the tumour, an incision about an inch in length was made into it at its lower part, on the right side of the vagina, and about two inches from its orifice. Four and a half ounces similar to that drawn off yesterday came away at the time, and about two ounces more escaped during the day mixed with a few clots.

"30th.—Pulse 86. A good deal of fetid fluid comes away from the vagina.

Still vomiting and retching every hour or so. Neither medicine nor food remain on the stomach above a few minutes.

"May 1.—Expression of face very much altered and pinched. Tongue dry and brown; vomited matters quite bilious; bowels opened to-day. To have injections of nutritive soups. Pulse 80.

"2d.—Face more sunk and pinched than yesterday. Pulse 70. Vomiting and retching more urgent. Vaginal discharge diminished. Still using vaginal injections of tepid water, rectal injections of soups. Takes brandy by the mouth, but generally vomits it.

"3d.—Pulse 40. Retching and vomiting still. Vaginal injections of tepid water came away almost colourless.

"4th.—Gradually sank, and died at 4 A.M.

"*Autopsy, made thirty hours after death.*—Great rigor mortis. The thoracic organs quite natural. The inferior extremity of the great omentum was found to be adherent to the upper and back part of the uterus. On passing the hand down into the pelvis, both the cæcum and rectum were found adherent to the viscera. The whole of the pelvic contents were removed together, when it was found that there was a soft tumour just in front of the right broad ligament. On making an incision into this, some dirty purulent matter escaped; but the rest of the cavity was filled with large, undecolorised, pretty firm clots of blood, and the opening at the bottom of the cavity, made during life, communicated with the upper part of the vagina. The liver was divided into a number of additional lobes by the presence of several deep fissures, and the kidneys were in a state of waxy degeneration."

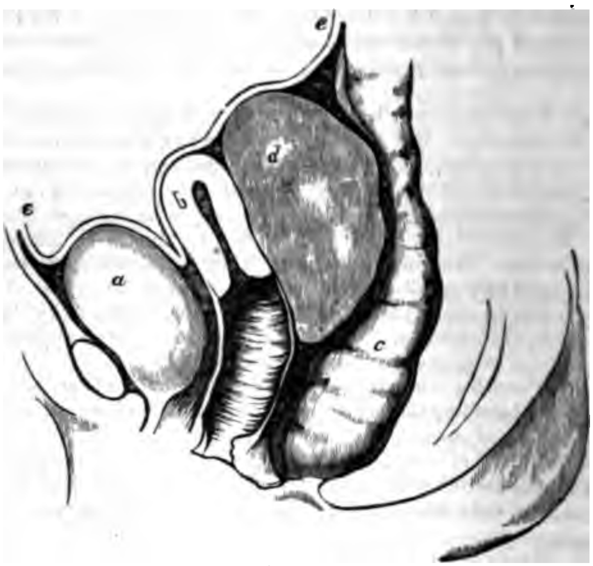


Fig. 21.

Fig. 21 shows the situation of the hematocele (*d*) between the uterus (*b*) and the rectum (*c*). *a*. The bladder. *e*. The peritoneum.

It so happened that during the same week in which the death of this hospital patient took place, I had a patient in private practice who died of the same disease. She was sent from a great distance to Edinburgh, in consequence of a pelvic tumour having suddenly appeared. Fatal inflammation was set up by the journey. On dissection, I found the reflection of the peritoneum between the uterus and rectum raised up, as shown in this diagram (see Fig. 21), and a large mass of broken coagula of blood formed the tumour, having been extravasated behind the peritoneum, forming the posterior covering of the broad ligament, and, as it accumulated, having separated and pushed before it that portion of peritoneum and the utero-rectal fold of this membrane. In the present state of uterine pathology, we can recognise the malady with tolerable certainty, and we all see cases of it ever and anon occurring. Nay more, now that we have a clear conception of the nature of the disease, when we begin to consult the older authors, we find that some of them had tolerably distinct ideas as to its nature, and a positive knowledge of its occurrence. Ruysch more particularly has described some cases of it; and in the obstetrical books that are usually classed with the Hippocratic writings, there are distinct indications that the author had some acquaintance with this affection even at that early period.

NOMENCLATURE OF THE DISEASE.

The disease has received different names from the authors who have written anything regarding it. There are many notices of it in French literature, and by French authors it is generally spoken of as Retro-uterine Hematocele. Others call it Peri-metrine and Peri-uterine Hemotecele, from the fact that it is not confined in position to the cellular tissue lying behind the uterus, although that is its chosen seat. It is spoken of, again, as Pelvic Thrombus by others, because the swelling is of the same nature as the surgical thrombus sometimes seen in the labia pudendi, as a result of injury to some of the vessels there. Here we have been in the habit of speaking of it as Pelvic Hematocele or Hematoma, because that name expresses what the disease in reality is—viz. a blood-tumour or effusion in the cellular tissue of the pelvis or within the cavity of the peritoneum; and that you may be able to understand its nature, and to recognise the disease when it comes before you in practice, let me proceed to tell you something of the manner in which it seems to be produced, or to tell you, in other words, what is known regarding

THE PATHOLOGICAL ANATOMY AND PATHOLOGY OF THE DISEASE.

It occurs, let me first of all remark, sometimes in puerperal women, but more frequently we meet with it in nón-puerperal females, and altogether unconnected with the parturient process. It is seen in patients of all ages; but is more frequent about the age of thirty, according to my experience, than at any other period of life. The disease seems to be usually produced by the rupture of one of the veins or arteries that supply the ovary, and pass to it between the layers of the broad ligament. The blood escaping from the ruptured and sometimes varicose vessel, infiltrates into the cellular tissue of the blood ligament, and those neighbouring parts of the pelvic cellular tissue which communicate freely with it, forming there a swelling or tumour composed of this effused and incarcerated blood, as in a thrombus or blood-swelling of the subcutaneous cellular tissue from injury, or as in the so-called sanguineous apoplexy of the brain, lungs, and other organs. As the blood extravasated from the broken utero-ovarian vessel accumulates in the surrounding cellular tissue, it separates the serous layers of the broad ligament from each other, or raises and pushes before it, more particularly, one of these layers, to form, as it were, a covering to the blood-tumour. More especially is the posterior peritoneal layer often apparently separated and displaced in this way, as well as the fold of peritoneum stretching between the uterus and rectum. It is this affection which constitutes the true pelvic or retro-uterine hematoma. But, occasionally, there is a form of pelvic hematocele of a different origin, and with the effused blood in a different site. For according to the evidence of various French pathologists—as Nelaton, Laugier, Bernutz, and others—a retro-uterine hematocele may be formed by blood accumulating *within* the pelvic portion of the peritoneum, the blood collected in this locality having escaped from a ruptured ovarian vesicle during menstruation, from the fimbriated extremity or course of the Fallopian tube, or even from the cavity of the uterus—the blood regurgitating along the Fallopian tube into the peritoneal cavity. Certainly, sometimes, even when the site of the hemorrhage is a ruptured vessel of the ovarian or uterine plexus enclosed within the broad ligament, the effused blood has burst through the opposing layer of peritoneum, and escaped directly into one of the peritoneal pouches behind or in front of the uterus, where its presence has acted as an irritant to the peritoneum, and led to its being encysted and enclosed in a separate cyst or cavity, produced by the adhesion of opposed inflamed surfaces. These ruptures of the blood-vessels of the utero-ovarian plexus, and consequent extravasations of blood, most frequently occur during a menstrual period, when a certain degree of excitement and physiological congestion is set up in the ovary, for then the vessels being more distended with blood will be more likely to give way in their coats under the action of any unusual impetus. The blood which escapes from the injured vessel or vessels passes in between the layers of the broad ligament and separates them from each other, forming a tumour in many respects resembling the inflammatory tumour produced by the effusion of serum into the same locality, but only forming more rapidly and suddenly, without any premonitory symptoms. Or one of the terminal branches of these ovarian vessels may give way, and the blood be thrown into the substance of the ovary itself. This rarely happens in the healthy ovary, but it has now been not unfrequently seen in cases where the organ has been altered and rendered friable as a result of disease; and then the extravasated blood, after breaking up the softened structures of the ovary, may make its way eventually into the cavity of the peritoneum. It would seem, I have said, in some cases as if the rupture occurred in a superficial vessel, and the extravasation took place directly into the peritoneal cavity. A very melancholy and distressing instance of this kind of injury occurred, many years ago, in a patient of Dr. Malcolm of Perth. This patient, when otherwise apparently in perfect health, was suddenly seized one forenoon with pain in the abdomen and faintness, which went on increasing during the day in spite of the most skilful treatment. That same night the lady died, and at the post-mortem examination the abdominal cavity was found filled with coagulated blood which had escaped from a ruptured blood-vessel lying in the broad ligament of the uterus. Most frequently, as I have stated, extravasations of blood into the cellular tissue of the pelvis result from rupture of one of the ovarian vessels as it courses along the broad ligament, and they usually occur in connection with menstruation. But it is proper to add that pelvic hematoceles may have other sources and seats, for other vessels besides the ovarian vessels are liable to rupture. Thus I saw some time ago, along with Dr. Young, a patient in whom one of the upper hemorrhoidal vessels had given way, and led to the formation of a hematocele of large size in front of the rectum, where it could be distinctly felt between that canal and the cavity of the vagina. Tumours of this nature are not unfrequently met with also in the walls or at the sides of the vagina, but rarely of any great size. Indeed, there is almost no limit to the variety of situations in which a pelvic thrombus or hematocele may be found, for the veins may give way in one part of the pelvis, and the blood which escapes may fill sometimes one fascial loculament only of the pelvis, and at other times several at once.

You will find that various accounts have been given as to the size of the swelling, and various statements made as to the extent to which hemorrhage may take place into the loculi of the pelvic fascia. Of course all this varies greatly in different cases and different patients. I have seen two or three instances where a pelvic hematocele was as large in size as a gravid uterus in the fourth or fifth month of pregnancy. In practice you will usually find them much smaller, and in most cases you will ascertain their presence by a vaginal rather than an abdominal examination. The most frequent form is where the extravasation occurs between the layers of the broad ligament, where it is confined and limited in size, and rounded and elongated in form; or it may extend from this, separating the layers and passing down among the cellular tissue behind the cervix uteri, or between the rectum and vagina. In this case the tumour, like that formed by the serous effusion of pelvic cellulitis, may be at first small in size and rounded in form, but rapidly, as the extravasation spreads, the tumour becomes enlarged in size, elongated or irregular in shape, and fitting itself to the contour of the cavities into which the blood is thrown.

SYMPTOMS OF THE DISEASE.

You will rarely be called to see a case of pelvic hematocele until the extravasation of blood has fairly taken place, and the cellular tissue in some of the loculaments of the pelvic fascia has become infiltrated and distended; and then on examining your patient you will find a tumour present, which, in all its physical characteristics, and in all the functional disturbances that it produces, resembles very closely the swelling produced by the effusion of serum in the early stages of an attack of inflammation. But there are some marked points of difference. In a patient affected with pelvic inflammation you would find a high degree of fever, with the pulse rapid and strong, and the skin alternately burning hot and suffused with perspiration. Where the pelvic tumour is formed by effused blood, on the other hand, none of these signs are to be seen, and the general absence of all constitutional irritation and excitement is one of the most striking phenomena of the disease. The patient, if showing any constitutional symptoms at all, is usually depressed instead, and in a state of weakness and prostration. Then, if you examine the tumour itself a little more closely, you will find there are some distinctive marks there also. An inflammatory tumour is tender to the touch, and pressure with the finger elicits signs of suffering. The first formation of a blood-tumour seems to be often attended with pain, sometimes with great pain; but once it is fully formed, pressure on it with the exploring finger does not cause much uneasiness to the patient. An inflammatory tumour in its earlier stages is very hard and unyielding, and in its later stages, after suppuration has taken place, it can be felt to be fluctuating. A blood-tumour is comparatively soft and elastic, but the feeling of fluctuation is never very distinct in the mass of the swelling. There is usually, however, one spot where it is especially soft and yielding; and in the most common form of pelvic hematoma (that, namely, which depends on an extravasation of blood into the broad ligament and behind the uterus), this point is always to be felt somewhat behind and below the cervix uteri, where the finger sinks, as it were, into a kind of hollow. I suppose there is some natural opening or deficiency in the pelvic fascia at this point. In true pelvic hematoma, formed by an accumulation of coagulated blood between the layers of the broad ligament and in the neighbouring pelvic cellular tissue, the uterus itself is pushed strongly forward, and occasionally to one side; and sometimes the os or cervix uteri is raised or elevated by the pressure of the blood-tumour. This displacement of the uterus is ascertained on your first examination, or, if the effusion at least is a day old, in cases of pelvic hematocele. It is often found also in pelvic cellulitis, but then much later in the disease; or, in other words, not until the inflammatory effusion is at its height; and then generally in pelvic cellulitis the pelvic swelling, as ascertained by repeated vaginal examination, varies in form from time to time, and is much more general around and on all sides of the cervix uteri than in pelvic hematoma. Besides, rarely if ever does the pelvic tumour feel fixed to or springing from the pelvic bones within, as is so frequently the case in pelvic cellulitis. Then, again, if you can trace back a case of hematocele to its commencement, you will find the patient gives you a different history from what she would have done had the tumour in the pelvis been of inflammatory origin. Pelvic inflammation usually comes on with a high degree of fever, preceded by rigors, and is not necessarily associated with menstruation; while pelvic hematoma is almost invariably produced at a catamenial period, often occurs in cases where the menstruation is in some way irregular, and although the patient has sometimes a sort of shivering-fit at first, while the extravasation is taking place, she has no fever, but, on the other hand, rather a tendency to fainting. If we could by any chance watch the formation of the tumour, and find it forming rapidly in the space of half-an-hour or so, there would, of course, be then no doubt as to its nature, for its mere sudden formation would serve as a diagnostic mark; but this is an observation which it will hardly ever be in your power to make, although we may sometimes have occasion to know that the tumour has only had a comparatively short time to grow. There may be pain in both forms of tumour at their commencement; but in the case of hematocele, though the pain may be at first even more intense than that usually seen at first in cases of pelvic cellulitis, yet, instead of becoming more and more severe, as is the case with the pain attendant on a progressive inflammatory effusion, it usually becomes less and less acute as the infiltrated parts become accustomed and accommodated to the morbid pressure of the extravasated blood, so that at last an almost painless swelling alone remains, which you must guard yourself against mistaking for some form of malignant tumour, or some kind of chronic disease. At the close of last autumn, a very delicate patient under my care was one day seized with a sudden faintness and a feeling of great oppression in the region of the heart, the action of which became irregular. She complained at the same time of unusual pain and distension in the uterine region. It was the first day of a catamenial period, and as I happened to know beforehand in what condition the womb was, I traced distinctly the first formation of a pelvic hematocele. Fortunately the extravasation did not go on to any great extent, and with perfect rest and the use of the remedies of which I am to speak anon, the extravasated blood gradually became absorbed, but not till after the lapse of many weeks.

The case was interesting further in this respect, that the lady has a great dread of cancer of the womb, and is strongly apprehensive that she will be attacked with that dreadful disease, and not without reason—for her mother had been the subject of carcinoma. Now, had I not known previously that the womb in that instance was perfectly healthy, or at least that there was no trace of any carcinomatous affection about it, and had I first made an examination after the extravasation of blood had taken place, and a firm elastic tumour had been developed around, or rather behind, the neck of the uterus, I might very easily have been led to have adopted the patient's own gloomy apprehensions, and to have come to the conclusion that she was the subject of encephaloid disease. To sum up, then, I may say briefly, that the symptoms of pelvic hematocele are the same as those of pelvic cellulitis, with these two characteristic distinctions, that in the case of a patient affected with hematocele—1st, There is an almost total absence of all constitutional fever; and 2d, the local swelling is found large from the first, and not by any means so tender as in pelvic phlegmon. If, after making a critical investigation into the patient's present symptoms and her past history, and if, after making a careful local examination of the tumour, you still remain in doubt as to the nature of the effusion, you must, if you deem it absolutely necessary, proceed to resolve that doubt by pushing an exploring-needle into the mass, when the escape of the characteristic fluid of either form of tumour will at once reveal the real nature of the case. Always, however, bear in remembrance, further, that you may have both diseases present, and that large pelvic hematoceles often excite inflammation, and thus become combined with pelvic cellulitis and suppuration. Now that you have been made aware of the existence of this disease, and now that you know something of its pathology and symptomatology, I trust that when a case presents itself to you in practice you will have no great difficulty about its diagnosis. Before telling you how it is to be treated, let me say a word or two as to

THE PROGNOSIS OF THE DISEASE.

Many patients recover from this disease spontaneously. This fortunate result especially happens in those cases where the quantity of blood extravasated is small; for then it is capable of being absorbed, just as we see blood absorbed after it has been extravasated under the skin as a result of injury. But where the amount of hemorrhage has been greater, we cannot always be sure of such a fortunate issue. In such a case a variety of changes must first occur in the mass of blood before it can be absorbed or be eliminated; and frequently inflammation supervenes, and then you may have the size of the tumour increased from the presence of the effused serum. After a time suppuration sets in, and the fluid makes a way for itself to some mucous surface. It may open in this way into the rectum or vagina; but sometimes rupture has occurred into the peritoneum, and lighted up a fatal inflammation there. I have already told you that I saw two patients die in one week from this disease; and there was this peculiarity observed in regard to one of these patients, that the pulse became, during the last two days of life, lower and lower as the patient sank and died. This peculiar change in the pulse is the very reverse of what we see in cases of death from pelvic cellulitis.

TREATMENT OF THE DISEASE.

The indications for the treatment of pelvic hematoma may be reduced to four.

1. *The Employment of Hemostatic Measures.*—If you happened to be called to a case sufficiently early, while the extravasation was still going on, and the tumour still in process of formation—a contingency not very likely to occur often—the indication should be to try, if there were any time for it, to check the extravasation of blood by the prompt administration of some general hemostatic remedies, or of some of those medicines which, when taken internally, have the effect of moderating the flow of blood from injured blood-vessels. And at the same time you would do well to apply ice, or cold in some form, locally, with a view of acting more directly on the vessels, and leading to their contraction and closure. But usually there is little time for the adoption of such treatment. In most instances, indeed, there is none; for in the vast majority of cases you are not called to see the patient until some time after the rupture has occurred, and until the blood-tumour has been fully formed, and the blood has ceased to flow. Some other indications, therefore, demand your attention, and you will accordingly be obliged usually to have recourse at once to

2. *The Use of Antiphlogistics.*—There is, perhaps, no point of more importance to be attended to in connection with the treatment of pelvic hematocele, than the necessity of putting the

patient at once on antiphlogistic diet and regimen, in order to prevent, as far as possible, all chance of inflammation being lighted up in the tissues which are subjected to irritation by the presence of the effused blood. For the supervention of acute and suppurative inflammation in such a case is a most calamitous complication. I have already told you that hematocele is in itself sometimes dangerous,—it is almost always tedious; and you may remember that in a former lecture I pointed out that cases of simple pelvic cellulitis were not always free from danger, and were often of long duration. But when the two diseases coexist in the same individual, you can perceive that the immediate risks and dangers of the patient are multiplied; and as there has been both a traumatic extravasation of blood, and an inflammatory effusion of serum or pus, the time necessary for absorption becomes greatly prolonged, and the period of convalescence indefinitely postponed. Besides, inflammation set up around any large and decomposing mass of blood is always dangerous and perilous, especially as here, in the vicinity of a large serous sac such as the peritoneum. Hence the paramount importance of keeping the patient on a low and antiphlogistic diet, and of making her avoid every form of stimulant. Hence, too, the absolute necessity of keeping her at perfect rest. You may think this a simple matter, and easy to be attended to, but in practice you will find it extremely difficult to enforce complete quiet on your patient. She has often no pain and no fever, and after the uneasiness and prostration immediately consequent on the extravasation of blood into the cellular tissue have passed off, it is sometimes very difficult to persuade her to keep her bed for ten or twelve days subsequently. One of the fatal cases to which I have already more than once referred, occurred in a patient who travelled from Ross-shire to Edinburgh after she had recovered from the immediate effects of the extravasation. The excitement and irritation caused by the journey led to the occurrence of an inflammation around the seat of the extravasation, which speedily proved fatal. You must, therefore, try also to keep the bowels quiet for a time. Insist on the patient keeping free from all bodily and mental excitement, and maintaining the horizontal posture until the tumour begins to diminish. If it have been of such size as to project above the brim of the pelvis, you will be able to trace and mark out easily the daily diminution of it by external examination; if not, then by feeling it with the finger through the vagina, you will succeed in making the observation. The first and most important indication, therefore, which you are called upon in most cases of pelvic hematocele to fulfil, is to avert as far as possible all chances of any attack of inflammation in the surrounding tissues, or to subdue any inflammation that may chance to have arisen, by the prompt employment of proper antiphlogistic measures. With these means you may perhaps conjoin

3. *The Administration of Discutient Remedies.*—Most practitioners deem it necessary to prescribe some discutient medicines, which ought, at least in the opinion of the pharmacologists, to have the effect of promoting the dissolution and absorption of the extravasated mass of solidified blood; and if you really can prescribe remedies which are possessed of such an action, it would, of course, be advisable and right to administer them. But I know of no drugs that are very serviceable in this way, and it has yet to be shown that any one has the power of favouring the resorption of extravasated blood. All that you can usually do is to regulate the diet, by restricting the patient from the use of all stimulants and all indigestible matters, and by curtailing her usual amount of fluids. You may even give some alkaline diuretics, with the view at once of diminishing the quantity of the fluids already in the system, and of insuring the immediate secretion of the effete matters that are absorbed from the seat of the disease. If you do, however, think it necessary to have recourse to the use of discutient or deobstruent remedies, let me advise you to have them applied locally through the vagina, in the form of medicated pessaries, in preference to administering them internally through the stomach. I have sometimes used pessaries in this way, containing mercury, iodide of lead, etc., but not, so far as I could perceive, with any marked effect. All you have to do usually is to make a judicious use of antiphlogistic remedies, to enforce a strictly antiphlogistic regimen with rest; and to take every precaution to prevent the patient from injuring herself or aggravating the disease. Under this regimenal treatment, the blood, in most cases, will in time become absorbed, and the swelling will gradually disappear. Such, I say, is the most common course of the disease; but in some cases its course is changed, and a corresponding change of treatment is required at the hands of the practitioner. Sometimes inflammation sets in, in despite of your most skilful and careful treatment; or it may have begun before the case came into your hands; or the patient may have an aggravation of all her sufferings from a renewed extravasation of blood. Now

where a pelvic hematocele begins to enlarge, and to become painful, I believe you give your patient the best chance of recovery by having recourse to

4. *The Opening of the Tumour.*—When a hematocele is running its course gradually and quietly, causing no great amount of pain, and giving rise to no particular degree of distress, your patient's best chance of recovery lies in her keeping at perfect rest, and in your totally and resolutely withholding your hand from all kinds of surgical interference. But if betimes the tumour begins to swell up and enlarge in consequence of inflammation being lighted up in the involved and surrounding tissues, you will find that the extravasated matters try to gain an exit for themselves through some mucous or other surface, as the rectum, vagina, or into the peritoneum, and you must take the hint from nature and make an artificial opening into the fluid collection at the point most favourable for its free and full evacuation. As in the case of purulent collections commencing in the broad ligament, so in the case of hematocele when the hematocele becomes inflamed and softened, the most dependent point is usually to be found immediately behind the os uteri in the posterior cul-de-sac of the roof of the vagina; and a good, free incision made into the mass at this spot you will generally find to be followed by the best results. I have now repeatedly had recourse to that measure, and with the greatest benefit. In making the evacuation, do not try to draw off the fluid with a trocar and canula, as I improperly did in the hospital case the account of which I read to you, because there are always masses of blood-clots mixed up with it which are too large to escape through the canula, but which it is of the utmost importance to have removed. They act the part of a foreign body in the cavity, like the necrotic tissues to which I directed your attention when speaking of fetid abscesses; and so long as they remain there, you can entertain no reasonable hope of a cure. To open the hematocele effectually, you must make an incision into it with a tenotomy-knife, and then freely dilate the opening still farther with the finger. By enlarging the orifice in this way, you run less risk of causing a dangerous degree of hemorrhage than when you at once make with the knife an incision of sufficient size to admit of the escape of the solid masses. For it is not enough in a case of this kind to make an opening into the cyst. You must introduce the finger through it and break down the septa and blood-coagula, so as to ensure their complete removal; and it is only when all the contents of the cavity have been in this way well

cleared out that you insure the best chance of its contraction and closure. This operation may even be performed with safety and success in cases that look most unpromising; in cases, for example, where the patient has become pale, and of an exsanguine appearance, in consequence of the extravasation of a great quantity of blood into the cellular tissue of the pelvis. Two or three years ago I saw a patient along with Dr. Cruikshank, when she was at the time the subject of an enormous pelvic hæmatocele. She was then extremely pallid and weak; and the hematocele had become tender and inflamed, and was threatening to enlarge and burst. I made a free opening into it, and cleared out the contents of the cavity, which gradually contracted and healed up. She left Edinburgh before she had altogether regained her strength, and when she came to call on me lately, I did not at first recognise her, so very different did she look from the exhausted chlorotic-like patient whom I had previously seen. I repeat, then, What you have to do in most cases of hematocele, is simply to watch carefully the progress of the case, and protect the patient from every form of injury; to keep down as far as possible all chances and tendencies to inflammation in the part; and if symptoms of inflammation and inflammatory effusion and swelling do come at last to manifest themselves, to make a free and early incision into the cavity, so as to evacuate the whole of its contents. The artificial evacuation of the collected blood may perhaps also be occasionally judged advisable in some cases, where no inflammation has supervened, but where the tumour continues large and presses injuriously and painfully upon the surrounding parts and organs. But such instances are rare.

HEMATOMA OR THROMBUS OF THE VULVA.

But hematomata are not confined to the portions of cellular tissue lying between the layers and prolongations of the upper division of the pelvic fascia. They sometimes occur lower down in some part of the wall of the vagina, most frequently towards the outlet of the canal. Here they may occur as a result of direct injury; oftener still they are produced during labour. The veins at this point are large and numerous, and during the course of pregnancy they become somewhat dilated from the pressure of the enlarging uterus on the veins above; so that when labour supervenes, and they become themselves subjected to the direct pressure of the fœtal head from above, one of them sometimes bursts, and gives rise to a swelling in the maternal passages, which may impede and seriously complicate the progress of the labour. Blood-tumours forming in this way in the labia pudendi, or in the walls at the lower end of the vagina during the parturient process, do not necessarily call for any immediate treatment. If of no great size they may be left to themselves, and after a time they usually become absorbed; but sometimes inflammation supervenes in them, and then you will require to open them. Where, on the other hand, the size of the swelling is such as to interfere with labour by forming an obstacle to the passage of the fœtal head, the case becomes more critical, and the treatment, if the mechanical obstruction ever prevents the exit of the head, may require to be more heroic. In such a complication you may require to make an incision to allow the fluid to escape, and the swelling being thus reduced in size, the birth of the child is facilitated. But where it becomes necessary for you in this way to open the tumour, I would beg to impress upon your minds the propriety of postponing the operation if possible till such time as the effused blood has become coagulated, and till the blood has ceased to flow from the injured vessel. If you can't wait so long—if the extravasation is still taking place, but prolongation of the labour threatens to be injurious to the life of the mother or the child, what are you to do? Then you must still evacuate the thrombus; but, in addition, you must be prepared to apply pressure to the bleeding surface, remembering that the blood is escaping from a ruptured vein, and that venous hemorrhage is always most effectually arrested by means of direct pressure.

VARIX OF THE PUDENDAL VEINS.

As I am speaking of these veins of the pudenda and lower part of the vagina, let me make one or two further observations regarding another morbid condition to which they are sometimes liable. Like the veins of the inferior extremity, when the flow of blood in them is impeded during a lengthened period, they may become enlarged and varicose, and then they assume the prominent and tortuous appearance seen in this drawing (see Fig. 22). This state of the veins is sometimes produced gradually during the course of pregnancy, so that during labour they became turgid and prominent, leading to the idea that it will be necessary to have recourse to some extreme measure to obviate the chances of their being ruptured. But in truth they rarely, if ever, require to be interfered with during labour. I have repeatedly seen and been consulted about pregnant and parturient women in whom this condition of the veins was present, but I never saw a case where, by their own bulk, they caused any such impediment or annoyance as required any special treatment during labour.

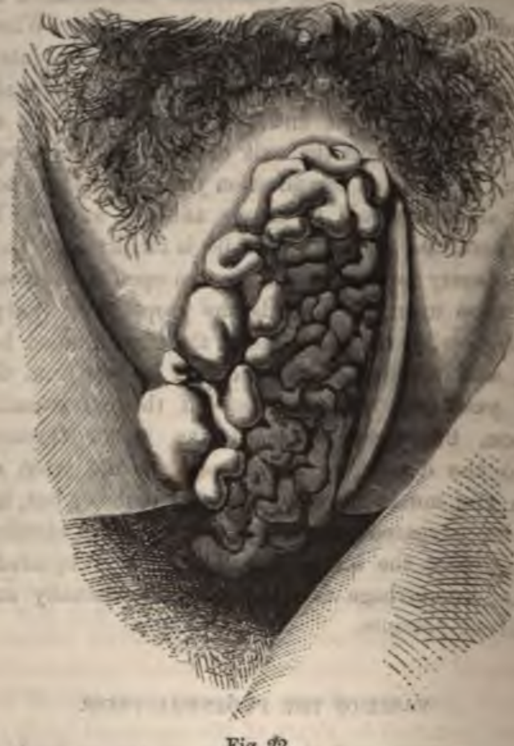


Fig. 22.

But like varicose veins in other parts of the body, these varicose veins of the vulva are apt to become inflamed, and their walls may, in consequence, become indurated and inelastic, for then the diseased and stiffened vein bleeds as profusely as an artery. Should they, when in such a condition, be subjected to any kind of injury, a dangerous and even fatal hemorrhage may readily result. In the Scotch law-courts during the last five-and-twenty years, a considerable number of trials have taken place in consequence of women bleeding to death after sustaining some injury of the pudenda. In

Fig. 22. Sketch of varicose veins of the nymphæ.—(Brasse.)

most of these cases all that was alleged as to the cause of death was that the woman had received a kick on the part at a time when she was pregnant, and that a slight laceration had been produced, from which the fatal hemorrhage took place. In such cases the veins are sometimes in the condition I speak of; and we have found experimentally that a blow on the part is sufficient to cut through these vessels by bringing them suddenly and forcibly in contact with the ramus of the ischium and pubis. In these cases death was so far accidental and unintentional. But in others a knife has been used, and an incision made into the veins, in order to mislead to the belief that the patient had died of puerperal hemorrhage. Sometimes the injury has been purely accidental, from the patient falling and hurting herself, on some broken crockery for example. In other instances, again, the hemorrhage has occurred spontaneously. A case of this kind happened at Dundee some years ago, where a patient died of hemorrhage occurring from a ruptured vein of the pudenda, and where she had been subjected to no kind of injury whatever. She was passing water when the blood began to flow, and she at once called the attention of those near her to the circumstance. Medical aid was immediately sent for, but before the doctor arrived the patient had bled to death. When the late Dr. Martin Barry was acting as house-surgeon in the Lying-in Hospital here, a case occurred where rupture of the pudendal veins was produced during the act of coition, and nearly ended fatally; and in one of the English journals a few years ago there was an account of a trial at Bristol, where a butcher was accused of killing a married woman, who died from rupture of these veins, produced under similar circumstances. I have taken this opportunity of speaking to you of these cases, in order that you may be aware of the occasional fatality of lesions of the pudendal veins, and in order that you may be made alive to the importance of at once obeying the call, should you ever happen to be summoned to aid a woman who had been subjected to such an injury. Here again, as in venesection and other forms of venous hemorrhage, pressure is generally adequate to arrest the discharge, but it may require to be kept up both strongly and steadily.

LECTURE VIII.

ON CANCER OF THE UTERUS.

PATHOLOGY AND SEMEIOLOGY OF THE DISEASE.

CANCER, in its various forms, affects and destroys the members of the female sex to a far greater extent than it affects and destroys the members of the male sex. In support of this observation, let me merely point out to you the proportion of fatal cases of cancer in the two sexes, which occurred in England during the years 1847-61, according to the annual reports of the Registrar-General, as shown in this table of the

MORTALITY FROM CANCER IN ENGLAND AS REGULATED BY SEX.

Year of Report.	Total Fatal Cases of Cancer.	In the Female Sex.	In the Male Sex.
1847	4586	3288	**1298**
1848	4825	3449	**1376**
1849	4807	3487	**1320**
1850	4967	3567	**1400**
1851	5218	3716	**1502**
1852	5477	3872	**1605**
1853	5663	3932	**1731**
1854	5826	4072	**1754**
1855	6014	4189	**1825**
1856	5859	4069	**1790**
1857	6201	4381	**1820**
1858	6433	4464	**1969**
1859	7369	5406	**1963**
1860	6827	4727	**2100**
1861	7276	5096	**2180**
Total . .	87,348	61,715	**25,633**

TABLE OF 91,058 DEATHS FROM CANCER IN ENGLAND (1847-61) AND SCOTLAND (1855-58).

	Actual Number.		Relative Proportion.	
	Males.	Females.	Males.	Females.
Under 10 years	617	626	100	101
From 10 to 15 "	134	147	100	109
" 15 " 25 "	562	659	100	123
" 25 " 35 "	1244	3,176	100	255
" 35 " 45 "	2717	9,975	100	367
" 45 " 55 "	4973	16,668	100	335
" 55 " 65 "	7220	15,813	100	219
" 65 " 75 "	6286	11,840	100	188
" 75 " 85 "	2637	4,616	100	175
" 85 " 95 "	364	689	100	189
" 95 and upwards	20	39	100	195

Cancer is, therefore, between two and three times more fatal among women than among men; and this difference is principally due to the circumstance that this fatal disease is extremely apt to become localised and take origin in two organs peculiar to the female—viz. in the uterus, and in the mamma. Of these two organs the uterus is most frequently attacked; and, perhaps, of these 61,000 deaths from cancer in women, about 25,000 were cases of cancer of the uterus,—more than one-third of all cases of cancer in the females being instances of cancer of the uterus.

We had lately in the Hospital two instances of the occurrence of this disease in the uterus, and I shall now first of all read to you the history of these cases, as they were drawn up by the clinical clerk, Mr. Cayzer, and then take occasion to speak of some points in connection with the symptoms, diagnosis, and treatment of carcinoma uteri.

I.—M. R., aged 42, native of Dunfermline; married. Has had nine children: the youngest is now nineteen months old. Has recovered well after her confinements, and always enjoyed good health until ten months ago, when she first noticed a discharge from the uterus. She describes this as resembling "thick white cream," in colour and consistence. This discharge continued during two months, and this was gradually displaced by fluid blood and clots of variable size. During the flow of this discharge, which sometimes ceased for a week or more, the pain which she felt at other times was relieved. The smell has continued to be very offensive. Her rest has been much disturbed by the constant burning pain. Bowels generally costive. Appetite pretty good, but not so keen as formerly. None of her family have suffered from uterine disease, so far as she can remember.

Admitted into No. XII. Ward on October 29, complaining of a constant burning pain referable to the uterus, and stating that for the past three weeks she has had but little uterine discharge, and that what does appear is thin and watery, slightly tinged with blood, and of a very offensive odour. She has a frequent desire to pass water, but the act of micturition is not attended by pain or scalding. Ordered nourishing diet and rest, and at night suppositories with ½ grain of morphia in each.

Nov. 16th.—To use every night and morning a pessary containing ten grains of M'Dougall's disinfecting powder.

23d.—Since using the suppositories and pessaries the pain is much relieved, and she has in consequence enjoyed better rest. Still complains of pain in the loins. There is very little blood now in the uterine discharge.

An examination, per vaginam, reveals the whole of the lower segment of the uterus enlarged with an irregular, hard, and nodulated outline, and but little sensitive. The os and the whole of the cervix uteri appear to be implicated in the disease; but the finger can be passed quite round in the cul-de-sac of the upper extremity of the vagina. The parts have a red, congested appearance, and bleed readily about the margins of the os under slight pressure.

II.—A. S., aged 34, a native of Banff. Married eleven years. Has had three children, all healthy, as are the other members of her family.

Up to this present year she has enjoyed very good health, and has been in the habit of working very hard at washing and cleaning. In April last (after a week of unusually hard work, in the course of which she was often lifting heavy weights, while she was menstruating, menorrhagia supervened, and continued in various amount for five months. During this time she became very weak, and rapidly lost flesh and colour. She was under treatment at the Dispensary during September and October last, and in the latter month became so enfeebled that she could not continue her regular attendance there, and was visited at her own house. The treatment at the Dispensary consisted of the use of astringent injections, and the internal administration of some preparation of iron.

She was admitted into No. XII. Ward on November 10, and on admission was thin, weak, and sallow. She states that she was robust before her illness commenced. She complains of great pain in the cavity of the pelvis, and at the lower part of the back, occasionally lancinating, but always present, though varying in intensity. The pain was at its first appearance attended by an extremely offensive discharge, much resembling dirty water streaked with blood, and more or less discoloured. The persistence of the pain interferes much with her sleep. The appetite is now a little improving, but has been very bad. Bowels rather costive. Pain in passing water, and a frequent desire to empty the bladder.

A vaginal examination shows extensive disease of the os and cervix uteri, with considerable loss of substance. The diseased mass hard and nodulated, and the irregular edges give a sensation to the finger resembling that produced by cartilage. There is an extremely fetid discharge, of a dirty brown colour, and tinged with blood. The edges of the scirrhous mass are sensitive, and considerable pain is caused by pressure.

Ordered nourishing diet, and tincture of the muriate of iron. To use pessaries containing ten grains of M'Dougall's disinfecting powder.

Nov. 20th.—To have three ounces of port wine daily.

26th.—Remains much the same. Complains of pains caused by introducing the pessaries, which is avoided by a little care, introducing them so as not to press unduly on the edges of the scirrhus.

These two patients are examples of carcinomatous disease of the uterus, such as will often present itself to you in practice. They were not kept long under observation in the Hospital. They remained for a week or two, to give them time to recover their strength a little, and an opportunity of learning how to treat themselves. The rest, freedom from care, and good diet of the Hospital, restored them, in some degree, to better health. I am not going to enter into the details of these cases, and enlarge upon their peculiar features; for in fact they present nothing peculiar. They are good common examples of a common disease—viz. cancer of the uterus, and afford me thus an opportunity of making some general observation on the nature, the symptoms, the diagnosis, the progress, and the treatment of that malady. And first let me direct your attention to

I.—Its Anatomical Seat and Course.

Cancer in the Cervix Uteri.—When cancer attacks the uterus it usually does so in its lower segment, or in the region of the os and cervix, as has happened in the two cases in the Hospital. But cancer does not attack in the first instance the cervix uteri invariably or exclusively, as some have averred; for it sometimes originates in the body, or even in the fundus. Its course, however, is commonly such, that we find first of all an enlargement of the cervix, which is not to be readily distinguished from other swellings occurring in the part, and which is produced by the deposit of cancerous matter in its substance. This deposit spreads rapidly and early into the surrounding cellular tissue, which becomes hard and indurated. So far the mucous membrane is entire; but betimes it begins to soften and ulcerate, and as the ulcer forms and deepens hemorrhage is produced. The early and extensive infiltration which takes place into the tissue surrounding the cervix renders it firm and immobile, and this is one of the distinguishing characteristics of the affection. For while you may often see chronic inflammatory affections of the cervix producing enlargement and induration, you will still find the cervix loose and movable, because there is none of this inflammatory deposit effused into the cellular tissue around. In cancer of the cervix uteri, as the neighbouring textures get infiltrated and indurated, and ulceration takes place in the seat of the original deposit, the os becomes hollowed out, irregular, and rough, and the resulting excavation has its walls sometimes of a soft and friable character, especially at particular points; while in other parts and cases the walls are hard and cartilaginous, and, as in the second case in the Hospital, impart to the finger pretty much the same sensation as the interior of a leather dice-box. Sometimes, instead of ulceration and excavation, you will find fungous masses growing at one or more points from the excoriated surface. Ere long, the disease spreads to the neighbouring organs—backwards to the rectum, more frequently forwards to the bladder, and downwards along the vagina and urethra. It keeps always extending itself along the walls of these viscera, and when ulceration goes on after the bladder has become implicated, vesical fistulæ are sometimes produced; or the rectum may be opened into and a hopeless recto-vaginal fistula ensue. In some few cases all the three canals come to communicate, and the urine and fæcal matters mingling with the discharges from the diseased mass, and all escaping per vaginam, render the condition of the unfortunate sufferer one of the most hopeless misery. Some of the drawings, which I show you, are illustrative of these various points. The lymphatic glands of the groins, pelvis, and abdomen, sometimes become swelled from cancerous deposit in them; but secondary carcinomatous infiltrations into distant organs, as the liver, spleen, lungs, etc., are rarer in uterine than in most other forms of cancer. After death, besides the cancerous deposits and infiltrations alluded to, morbid inflammatory adhesions and limited effusions of pus are frequently found among the contiguous surfaces and folds of the peritoneum in the neighbourhood of the uterus; and in a considerable proportion of instances you will find mechanical distension of one or both ureters, and corresponding degeneration of one or both kidneys—the lower end of the ureters having become compressed and partially obstructed by the cancerous

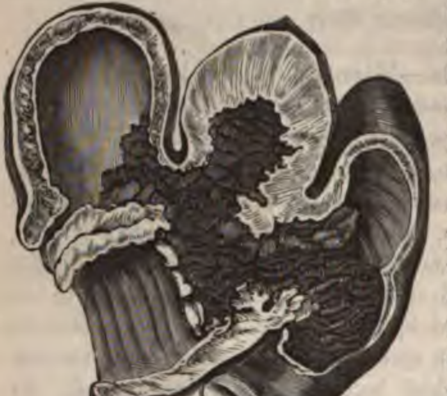


Fig. 23.

Fig. 23. Carcinoma beginning in the cervix uteri, and ending in the production of recto-vesico-vaginal fistula.—(Farre).

affection of the uterine and vesical walls. Occasionally in the same way the rectum is obstructed, and the bowel above dilated.

Cancer in the Body and Fundus of the Uterus.—I have said that the body or fundus of the uterus may become the primary seat of the disease, and here it may assume different types which are not always very easily recognised. And if the cervix be at the same time healthy, the case becomes extremely deceitful, and the true disease may be readily overlooked. The principal forms under which carcinoma appears, when it begins in the body or fundus of the uterus, are, as far as I have myself had occasion to observe them, the following:—1. The cancerous deposit may become located in the outer layer of the middle coat of the uterus, or in the sub-peritoneal or peritoneal coat. Here is a drawing of a case which I attended some years ago, and in which you will perceive the os and cervix uteri, the cavity of the uterus, and its lining membrane, sound and entire. But cancerous deposit has taken place to a great extent in the thickened walls of the fundus and body of the uterus, forming a large irregularly shaped tumour which became adherent to the bladder and at last fungated into the vesical cavity, leading on to severe hematuria before death. 2. Carcinoma occasionally attacks the whole thickness of the uterine walls without producing any local protrusion or prominence upon them, either exteriorly or interiorly. 3. The most common form of the disease, however, is that in which it has its primary seat—like cancerous disease of the stomach—in the mucous or submucous coat of the body or fundus, producing as in the case of which I show you this drawing (Fig. 24), general cancerous ulceration of the interior of the uterus, ending in fatal ruptures of the fundus; or assuming, as I have much more frequently seen, the form of a sessile irregular excrescence or fungoid mass projecting into, and distending, the uterine cavity, or even dilating and partially pressing through the healthy, but distended,

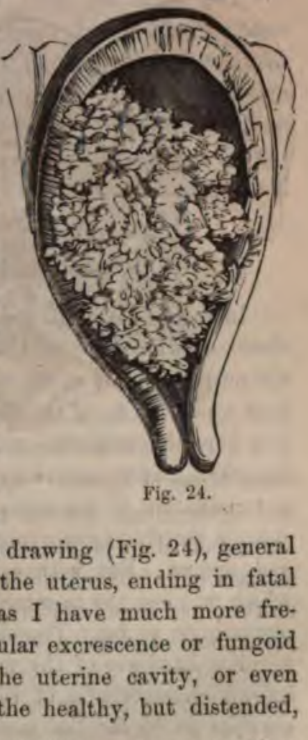


Fig. 24.

Fig. 24. Section of uterus, showing its cavity filled up by a polypoid or sessile mass of carcinoma which sprung from the posterior wall of the body of the organ. The cervix uteri healthy and still shut. (One-third of full size.)

os uteri. The first time I ever saw and fairly made out the case of this last and most common form was in a patient who had long suffered from an abundant serous and sometimes offensive discharge. She was here, from England, under the care of an old master of mine, and had been often treated by the application of caustics to the vagina and cervix, with the hope of arresting the copious and constant discharge. When consulted in regard to her case, I suggested the introduction of a sponge-tent into the os uteri, that we might then have an opportunity of making out more clearly the source of the discharge, or, at least, of making sure whether it might not be proceeding from the uterine cavity, instead of the vaginal walls. After the sponge had been introduced, the discharge was found to be checked for the first time for many months, and on its withdrawal a fungating mass was discovered by the finger in the interior of the uterus.

You must not hold, therefore, that a patient has not got a cancer in the womb because the cervix is healthy; for the cervix may remain quite sound when the body of the organ has become extensively diseased. In a very large proportion of cases—in 28, perhaps, out of 30—the cervix is the primary seat of the disease; but in the other two it remains healthy after the rest of the organ has degenerated.

II. Pathological Forms of Uterine Cancer.

In regard to the pathology of carcinoma uteri, it has been much discussed what type of the disease is most frequently met with in the neck and body of the uterus. Almost every one now recognises it as a peculiarity of the disease, that, 1st, as it occurs in the cervix, it is here almost always primary; and 2d, when it extends, it does not often lead to secondary deposits in distant parts of the body by contamination of the system through the blood or otherwise, but spreads mostly by involving the neighbouring and contiguous tissues and organs. But, with reference to the particular type of cancer which is most apt to attack the uterus, observers are not quite of one opinion as yet. The older authors, judging apparently from the peculiar hardness of the neck of the uterus, which is such a well-known characteristic of cancer of this part, concur in describing scirrhus as by far the most frequent variety. More recent pathological and obstetric writers, on the contrary, give the first place to medullary cancer, and maintain that other forms are met with in the uterus in exceptional cases only. Thus, Mr. Paget speaks of "the peculiar liability of the uterus to medullary cancer." Scanzoni observes that "as to the varieties of uterine cancer, the encephaloid (medullary carcinoma) is certainly the most frequent." Again, Dr. Arthur Farre says that in the uterus "both scirrhus and colloid are rare, while encephaloid constitutes the chief form under which cancer is found." Lastly, Professor Rokitansky of Vienna, than whom no one has had more abundant opportunities of judging from post-mortem examination, states that "with rare exceptions it is the medullary cancer which presents itself for anatomical research in the uterus." Then Virchow, the greatest living authority in pathology, speaking of the comparatively rare affection of the uterus, termed cauliflower excrescence, holds that the type of malignant disease usually found here is the epithelial or cancroid. We find some growths retaining this character longer than others, and the

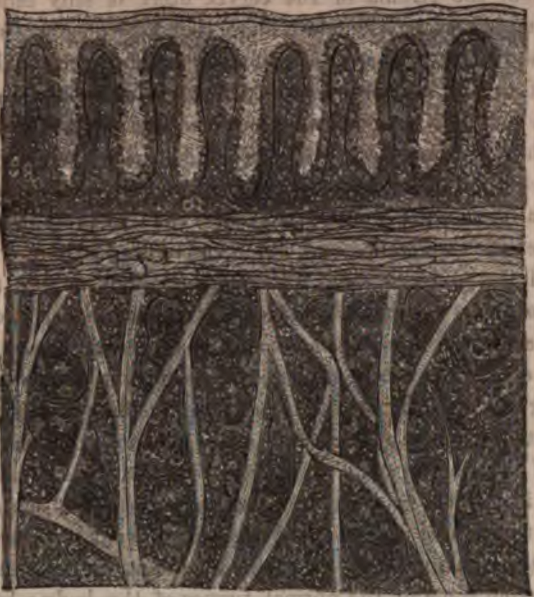


Fig. 25.

Fig. 25. "Perpendicular section of a commencing cauliflower excrescence of the collum uteri (cancroid). The papillæ of the os uteri, of a tolerable size, are seen on the yet intact surface, surrounded by some regular layers of epithelial cells. The disease begins at first beyond the mucous membrane in the proper parenchyma of the cervix, where the tissue is traversed by cell-deposits (alveoli) of a rounded or irregular form. Magnified 150." (Virchow.)

malignant formations in the uterus remain cancroid, longer, perhaps, than tumours in any other part of the body. By epithelial cancer I mean, of course, that we have a deposit of cells, having more or less the form and appearance of epithelial cells, among the tissues of the part, without the development of any additional stroma.

As to the cells themselves, we now know that there is no one form peculiar to cancer, and the presence of cells such as I have indicated in the stroma of the cervix uteri, is only indicative of malignancy in so far as they are altogether heterologous to the part. But in addition to the infiltration of heterotopous cells in the tissues of the cervix, and probably from some irritation resulting from it, a change is sometimes produced in the papillæ on its surface, so that these become greatly hypertrophied. They not only enlarge, but split up into a number of branches or villi, and as each villus contains a fine-walled capillary loop, they come to present an appearance under the microscope very much resembling that of a placental tuft; and to this excessive papillary development is due, according to Virchow, the fungous character of the cauliflower excrescence. In other cases, the morbid structure in uterine cancer is of the truly scirrhous or fibrous type; that is, a development occurs of a tissue consisting of an areolar stroma, from which a more or less abundant fluid containing many nucleated cells can be expressed when a section of the mass is made. Both the cells and the stroma in which they are imbedded may resemble in every histologic character the cells and the stroma of tumours which we are wont to regard as non-malignant in character, or they may even not differ widely in appearance from some of the normal tissues of the body; but we set them down as malignant or carcinomatous when occurring here, inasmuch as they are of a nature altogether different from those of the organ in which they have their seat, even although they may have originated from some of the cells of that organ which have taken on a perverted type of development.

And then the clinical history of the patients in whom such growths occur is just that of other patients in whom malignant disease in other organs is found—varied only by the nature of the local symptoms; for here, as elsewhere, they show that rapidity of growth—that tendency to fungate, to ulcerate, and to bleed; and that almost absolute certainty of a fatal issue, which have made them to be designated malignant.

In short, the disease is still cancer, though it may present itself ere under a variety of forms which have received separate nosological names. The so-called "cauliflower excrescence" of the cervix uteri is cancer in its epithelial or cancroid form. The so-called "corroding ulcer" of the cervix uteri is a variety of the same, and having some analogy with the "rodent ulcers" of other parts. And the cancer in the cervix, body, or fundus, is in most cases and stages medullary in its type, and in some again it comes to assume a scirrhous or a colloid character.

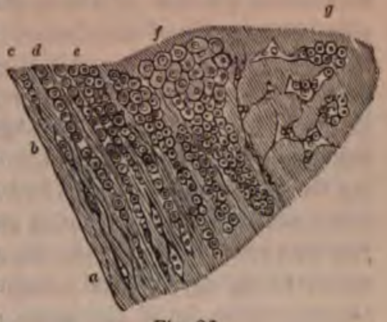


Fig. 26.

We have next to inquire, what are the phenomena of the disease? or, in other words, to investigate

III. The Symptoms of Carcinoma Uteri.

You find all the ordinary symptoms in the two cases in the Hospital. The chief *local* symptoms are three, viz.—1, Pain; 2, Menorrhagia; and, 3, Leucorrhœa in the form of a variously-coloured, and usually offensive discharge.

LOCAL SYMPTOMS OF CARCINOMA UTERI.

1. *Pain.*—Both of our patients have suffered from pain, in one of them of an intermitting character; in the other more constant. The intermitting pains which sometimes accompany cancer of the womb are sometimes very changeful and evanescent, and have been compared by a Scandinavian writer to the corruscations of the Aurora Borealis. The other more constant pain is greatest when the patient assumes the erect posture, or when she takes exercise, or does anything, in short, which will tend to produce congestion of the parts. I have under my care just now a patient from the West Indies who will not take opiates, in whom the pain, nevertheless, sometimes disappears entirely, and then after a time returns, and causes her the greatest suffering. You must not go into prac-

Fig. 26. "Development of cells from the connective tissue in carcinoma mammæ. *a*, Cells of the connective tissue; *b*, division of the nuclei; *c*, division of the cells; *d*, aggregation of the cells in rows; *e*, enlargement of the young cells and formation of the cancer-masses (alveoli); *f*, further enlargement of the cells and cancer-masses; *g*, the same process of development in a transverse section. Magnified 300." (From Virchow.)

tice with the idea that where there is no pain there can be no carcinomatous affection of the womb, or that any particular sort of pain is distinctive of the disease. You will meet with many cases where at first there is no pain at all. When the cells are first being deposited in the walls of the cervix, the tissues are pushed aside gradually but not painfully. Again, there are other cases where pain is present, but only slight in degree, and occasionally disappearing for a time. Or you may find cases where the disease runs its whole course without producing any painful sensation. In a patient who was brought to me from the country by her medical attendant not very long ago, I found a large carcinomatous growth involving all the anterior lip of the womb, and causing obstruction of urine from the pressure it exerted on the bladder, but exciting no other form of suffering; and when I told her that she was the subject of cancer in an advanced stage, she laughed in my face, and told us that it could not be so, for she had never felt any pain whatever. The case was all the more deceptive, that she had still a healthy appearance, and showed no sign of the cachexy which is usually so marked in such severe cases as hers.

In carcinoma uteri not only may pain be absent, or, when present, slight and intermitting, it may sometimes also be sympathetic and located elsewhere than in the uterus, as in the mamma, in the sides, down the thighs, or elsewhere; in which case the attention of the practitioner may be quite drawn away from the real seat of the disease. Many years ago, I saw, with the late Dr. Johnston of Berwick, a lady who had been treated in London for disease of the mamma, in consequence of a pain which she constantly felt there, but no kind of treatment ever seemed to relieve her. When she came under Dr. Johnston's care he had occasion to examine her, and suspected that there was some disease of the uterus; and subsequently, when I saw her, she had extensive carcinomatous degeneration of that organ, and yet she had never had any pain that seemed to point to disease there at all. Her pain was in the mamma, where no hardness or organic disease existed.

2. *Menorrhagia.*—As to menorrhagia as a symptom of cancer of the uterus, let me observe, that an unusual discharge of blood is often the very first symptom that excites your patient's alarm. She loses blood once or twice during an intermenstrual period; or the blood, at the menstrual period, passes away clotted, and in larger amounts than usual. On examining such a patient you will often find that ulceration has already set in. The first stage of the dis-

ease, in fact, has been, as it very often is, altogether latent and unsuspected. I have been seeing, just now, a patient with Dr. Newbigging, who said she was at the turn of life, and was frequently losing blood. She is the wife of a hotel-keeper, and goes through a great deal of work. Yet this active woman, with no complaint but menorrhagia, has almost all the cervix uteri destroyed by cancer. So then this blood-discharge is as frequent a sign of carcinoma as pain is. In some cases you will have none; but it is as early and constant an indication of the disease as any other, and when occurring in a woman at the climacteric period, or beyond that period, should always be looked upon with much suspicion. But the disease may sometimes be recognised before either pain or menorrhagia has been complained of. Just as carcinoma of the mamma is often discovered quite accidentally by the patient, from her hand coming in contact with a hard knot there; so the same disease may sometimes be detected in the uterus when the practitioner is making an examination with any other expectation than that of finding a cancer of the womb.

3. *Serous or Sanious Leucorrhœa.*—As to the serous discharge which continues pretty constant during the intermenstrual periods, I would only observe that it has often a very offensive odour, which is so peculiar that I have heard some practitioners aver they could diagnose cancer by means of it. It varies in character and consistence; being sometimes watery and pale; more frequently it is of a yellowish or greenish colour, and of creamy consistence; and, at times, it may be tinged with blood. It very often contains flocculi, from the separation of small portions of the friable growth; and is frequently of such an acrid character as to produce excoriation of the external parts.

CONSTITUTIONAL SYMPTOMS AND EFFECTS.

Whilst these changes are going on locally, the constitution of the patient may long remain sound and strong, and only break down under the long-continued discharge. In proportion usually as the disease extends, the patient becomes worn out with the pain and the discharge; and gradually acquires the sallow hue and peculiar expression which indicate the general cancerous cachexy. The digestive and assimilative functions become weakened, and you have marasmus added to the symptoms of anæmia. In other cases you find the patient's system breaking down before the disease becomes localised. She suffers from occasional uncertain pains in different parts of the body, becomes low-spirited and weak, and acquires a dingy or chlorotic-looking tint of skin; and after this has been some time established, localisation of the disease is indicated by the occurrence of hemorrhage from the uterus. Finally, after the disease has been fairly established in the part, and the cachexy has become developed, the functions of other and distant organs begin to be impaired, the digestive organs become weak, and the circulation irregular; in some, a sort of cancerous fever sets in, not so intermitting in its character as the hectic fever of phthisis, nor quite as well marked, but pointing as surely to a fatal issue.

IV. Diagnosis of Carcinoma Uteri.

As to the differential *diagnosis* of carcinoma uteri, I have little to say regarding it at present; for you have not yet had an opportunity of being made acquainted with the other diseases with which it is liable to be confounded. But there is one observation which I should wish to urge upon this point: it is this—that you are not entitled to diagnose the existence of cancer in the womb from any degree or kind of pain, bleeding, and offensive discharge, from which the patient may be suffering, not even when these are combined with the pale cachectic look which is usually pathognomonic of the disease. All these local and constitutional symptoms may be present in other uterine diseases besides cancer; and, in some latent cases of cancer they may be found absent. You can detect it with perfect certainty only by physical diagnosis. You must make a vaginal examination with the finger—for the speculum is here of little service—and only when the sense of touch has assured you of the condition of the cervix uteri, and not till then, can you honestly and conscientiously pronounce upon the nature of the case.

One morbid condition of the cervix uteri with which cancer of the organ may be and often is confounded, is that which results from chronic inflammation in it. This causes enlargement of the cervix and expansion of the os, attended with great induration, and when ulceration sets in, and pain and menorrhagia are developed, the case may very readily be mistaken for a case of cancer in its first stage. But here you have always the distinguishing characteristic to which I have already alluded, that in chronic inflammatory induration of the cervix the deposit is confined to the organ itself, which remains loose and mobile;

whereas in the case of cancer the surrounding tissues usually become early involved in the disease, and being infiltrated with the morbid deposit make the cervix uteri feel firm and fixed. And when ulceration has set in, you will find that the ulcer which results from inflammatory change—though it may look very irregular, rough, and ugly—is always on a level with the unbroken surface, or even projects above it, whereas the cancerous ulcer is always depressed, excavating, as it were, and eating out, the part in which it has its seat. One often sees mistakes made with regard to the diagnosis of cancer of the uterus, which are almost inconceivable, and which you may in almost every case avoid if you will just keep your wits about you when making an examination, and use a little common sense—a most invaluable and indispensable aid in all kinds of diagnosis. When you feel a rough, irregular, excavated or anfractuous ulcer seated on a hardened base, and surrounded by hardened tissue, in any other part of the body, as the exterior of the chest, face, or extremities, you set it down at once as cancer; and when the finger applied to the os uteri recognises the same condition, you need not doubt that here, too, you have to deal with the same disease. Cancer of the uterus used often formerly to be confounded with simple polypus uteri; and Dupuytren and other Parisian surgeons have recorded instances of patients being sent to them from the country, who had been told by their own doctors that they must inevitably die of their complaint, and who were completely cured by the simple operation of the removal of the polypus, and were thus recovered, as it were, from the very brink of the grave. I have seen the same mistake frequently committed in our own times, and yet it is a mistake which care will always enable to avoid. Cancer of the uterus may further, as I have hinted, be confounded with some other diseases, such as elongation of the cervix; but the differential diagnosis will be more properly considered when we come to speak of these diseases.

V. AGES OF PATIENTS AFFECTED WITH CARCINOMA UTERI.

Cancer of the uterus attacks usually the adult, or those advanced in years, the period of its most frequent occurrence being between the ages of 40 and 50. Out of 409 cases tabulated by Madame Boivin, she has noted twelve as occurring in individuals under 20 years of age, but these were most probably cases of chronic inflammation, or of some other simple affection of the uterus. Rejecting, therefore, these doubtful cases, we find that the percentage of cases of carcinoma uteri at different ages, as given by a few distinguished authors, is as follows:—

Percentage of Cases of Carcinoma Uteri occurring at Different Ages.	Lever.	Lebert.	Lee.	Kiwisch.	Scanzoni.	Tanner.	Total.	Proportion at Different Ages.
From 20 to 30 years	4	5	5	5	8	5	32	5·470 per cent.
" 30 " 40 "	31	14	17	19	35	22	138	23·589 "
" 40 " 50 "	48	16	42	48	60	29	243	41·538 "
" 50 " 60 "	33	8	21	33	5	21	121	20·683 "
" 60 " 70 "	3	6	7	16	0	15	47	8·034 "
Above 70 "	1	1	1	1	0	0	4	0·683 "
Total . . .	120	50	93	122	108	92	585	100 per cent.

Cancer of the uterus, contrary to a common opinion, doubtlessly is found far oftener in the married than in the unmarried, and the subjects of it have very often borne large families.

VI. PROGNOSIS IN CASES OF CARCINOMA UTERI.

In the uterus, as elsewhere, cancer is a disease over which medicine has little or no control. As to its course, it is very various, sometimes carrying off the patient very rapidly, sometimes going on more slowly. Patients usually die in from two to two and a half years after the detection of the disease; but if the system be deeply affected we have no power to check its ravages, and the patient may be in the grave within a few months. In other patients—chiefly aged ones, in whom the cancer has taken on the slow and senile character of all the functions and processes of the body—the course of the disease is sometimes very protracted. Thus I attended a patient with cancer of the uterus seven years after the death of Dr. Hamilton, who had recognised the disease as present during his lifetime.

In my next lecture I shall refer to the Treatment of this disease.

LECTURE IX.

ON CANCER OF THE UTERUS—*Continued.*

PALLIATIVE TREATMENT OF THE DISEASE.

THERE is one point in reference to the diagnosis of cancer of the uterus, which I forgot to allude to in my last lecture, and of which I was reminded by seeing a patient in Westmoreland yesterday; and that is, the difficulty of sometimes determining the true nature of the case when the disease has assumed the soft or encephaloid form. In the case which I saw yesterday there was a tumour on the exterior of the right side of the pelvis, firmly attached to the bone, and another similar but smaller mass inside the ileum. The medical attendants were at variance as to the nature of the disease, some holding it to be an abscess, and some regarding it as an aneurism. Without letting me know, Mr. Page had come to the same conclusion as that which I arrived at—viz. that it was a case of encephaloid cancer. At some points the mass was very soft, and had a very deceptive feeling of fluctuation; but a decisive proof of its nature was obtained by introducing an exploring-needle into its softest point, and bringing away no pus. A few weeks ago I saw, along with Dr. Walker, at Glasgow, a patient with a soft tumour extending from the left side of the uterus. It felt extremely like a purulent collection in the cellular tissue of the left broad ligament; but dissection afterwards showed that it was in reality a soft cancer connected with the body of the womb.

But it is time that we should pass on to the study of the

VII. TREATMENT OF CARCINOMA UTERI.

In the way of the constitutional treatment of uterine as of other forms of cancer, we do nothing, or almost nothing, except, perhaps, retard and alleviate the course and the effects of the malady. Nearly every form of mineral and nearly every form of vegetable remedy has been exhibited and tried which seemed at all likely to stay the progress of the malady, but as yet with little, or indeed with absolutely no success whatever. All that we can do constitutionally is to keep the patient as near the standard of health as possible, by generous diet, by invigorating regimen, and by tonic medicines, and thus enable her to bear up against the debilitating and destructive march of the disease.

But we can employ various measures which are of more or less avail to stay and stem, at least, the local symptoms and suffering, and smooth the patient's sufferings to the grave.

With this view, we have three leading indications to attend to—viz. 1. To use means to alleviate the pains and sufferings attendant upon the disease; 2. To use means to prevent and arrest the attendant menorrhagia; and 3. To use means to counteract the offensiveness and acridity of the attendant discharges. Let us first consider the

1.—*Measures calculated to palliate the Attendant Pains.*

To relieve the pain you must learn to administer opium by the stomach or rectum, or to apply it locally to the uterus, according as you find the patient can best bear it. Begin it always in small doses. Most women suffering from this or from other painful forms of malignant disease, become, as it were, opium-eaters; and I think it is our duty to teach them how to keep themselves as easy and comfortable as possible, whether the object be best obtained by the use of opium or in any other way. It is certainly our duty to alleviate, when it is beyond our power to cure. Where opium disagrees with a patient, you must have recourse to some other anodyne drug. You will find that conium has been much employed and recommended by some authorities, who have supposed it not only to be of use in relieving the pain, but to have some specific power of checking the progress of cancer. I have never been able to satisfy myself of the existence of this power; but I believe it to be a very good sedative. So also are belladonna, lupuline, stramonium, and Indian hemp, in some exceptional instances. Besides being used by the mouth, most of these anodynes may, if it be deemed better, be administered by the rectum in the form of a suppository, or applied to the cervix uteri in the form of a medicated pessary. By this term of "medicated pessary," I mean, as most of you know, small balls of a round or ovoid form, and of the size of a walnut, or of a Minié rifle ball, made of some medicinal substance mixed up with ointment, and brought to a proper degree of consistence by the addition of white or yellow wax; or they may be made with cocoa butter or gelatine. Our Edinburgh druggists keep medicated pessaries of various kinds containing morphia, belladonna, tannin, etc. The patient can easily introduce them herself, and they have the advantage over injections and lotions of applying the medicinal agent in a more continuous form. They are made of such a consistence as to dissolve gradually in the vagina at the temperature of the body. Generally they are coated with a layer of ointment made firmer from containing a larger proportion of wax, with the view of facilitating their introduction.

We have other local sedatives in the vapour of chloroform, and in carbonic acid gas, which may be used to supplement the action of these anodyne remedies, or to supplant them entirely where some indiosyncrasy prevents their use. The carbonic acid has been chiefly employed here within the last few years, and I imagined for a time that this application of it was something new and modern. But I may as well warn you, that should any of you imagine that he has made a discovery of something practical in medicine, if he will take the trouble carefully to look over the works of Hippocrates, or Galen, or Paul of Ægina, or of some other ancient medical writer, he will very probably get all the glory taken out of him. When the ancient Greek and Roman physicians burnt various herbs, the fumes from which were conducted by a tube to the os uteri in cases of uterine pains, ulcers, etc., they in reality applied carbonic acid gas. In Germany the waters of some of the baths, such as those of Marienbad and Nauheim, have

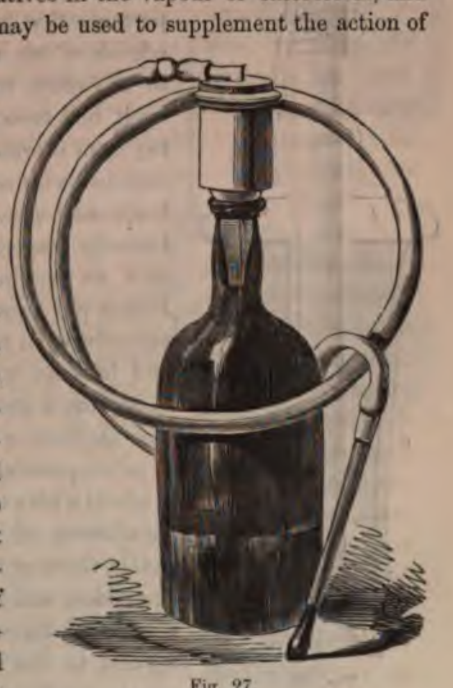


Fig. 27.

Fig. 27. Arrangement for applying carbonic acid to the uterus—viz. a long caoutchouc tube of three or four feet in length, with a nozzle at its free extremity, and fixed at its other extremity into a common wine bottle, with a tubular or perforated cork. In the specimen here drawn there is a metallic box affixed to the top of the cork, which, when filled with sponge, may contain a teaspoonful of chloroform, so that, when desired, the two local anæsthetics, carbonic acid and chloroform, may be used together.

long been used as local sedatives to the uterus, and these waters contain always a proportion of free carbonic acid. Dr. Dewees, a distinguished American author, also speaks of having used the pure gas in this way as a sedative for the pains of carcinoma uteri. My attention was first called to the subject by a paragraph in one edition of Dr. Pereira's *Materia Medica;* but Dr. Pereira himself considered this paragraph of so little importance that he expunged it from the last edition of his work. The paragraph was to the effect that his friend, Dr. Clutterbuck, had been requested by a lady suffering from uterine pain and irritation, to be supplied with some means of applying carbonic acid gas to the womb, as she had formerly experienced great benefit from such an application at the hands of an Italian physician. Latterly, I have used it extensively in many cases of uterine pain, and in some with excellent effect; for it is, in fact, a good and powerful anæsthetic. The application is very easily accomplished. A table-spoonful of crystallised tartaric acid is mixed with a table-spoonful of crystallised bicarbonate of soda in an ordinary wine-bottle, three or four wine-glassfuls of water are added, and the gas which is evolved is carried off through a caoutchouc tube, and applied to the womb by means of a gum-elastic nozzle attached to the extremity of the tube (Fig. 27). Our chemists have got into the way of supplying patients with boxes such as that I have beside me, containing twelve powders or packets, with six drachms of tartaric acid in each, and other twelve with an ounce of bicarbonate of soda. They furnish them also with the appropriate tubes, which, let me

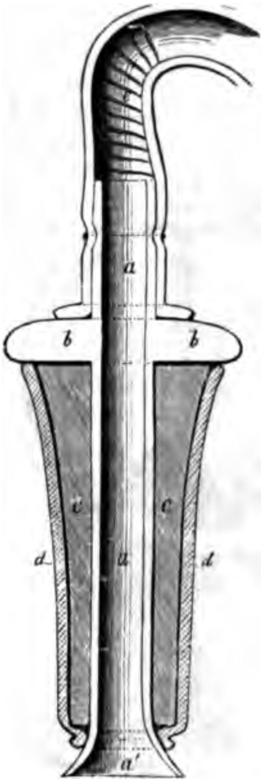


Fig. 28.

Fig. 28. Section of the perforated cork used in the local application of carbonic acid gas to the uterus. *a a* Metallic tube passing through the centre of the cork, and receiving the gas at its wide extremity *a′*. *b b* Metallic ring, in which the metallic tube is fixed. *c c* The perforated cork, sheathed by a layer of caoutchouc, *d*. *e* A coil of wire in the commencement of the india-rubber tubing, to prevent it from collapsing at the point of flexion : the metallic tube may be prolonged and bent, and in this case the coil of wire can be dispensed with.

add, are sometimes provided with a sort of brass box (see Fig. 27) immediately above the cork or stopper to hold pieces of sponge, and by pouring on these sponges some chloroform, you may have the combined sedative action of the two anæsthetics. Usually, however, the hollow cork and tube used are simple, like this (Fig. 28), and without any box; and if you wish to apply chloroform vapour along with carbonic acid, you require, when employing the simple tube, to add merely a teaspoonful of chloroform to the contents of the bottle before introducing the cork. When the tube is introduced into the vagina, after the evolution of carbonic acid gas has commenced, there is perceived first of all a rush, and a slight feeling of heat; by and by a soothing effect is produced. Besides its anæsthetic properties, carbonic acid is one of the best of local curative applications that can be made to an ulcer. In the last century Dr. Ewart of Bath made the experiment of applying this gas to two open cancers of the breast constantly and for a considerable time, and with this good result, that one healed up completely, though of course only temporarily; and in the other the pain was relieved and the ulcer partially healed. When carbonic acid fails to relieve the pain, the vapour of chloroform may be superadded to it in the manner I have indicated; or chloroform vapour by itself may be applied by

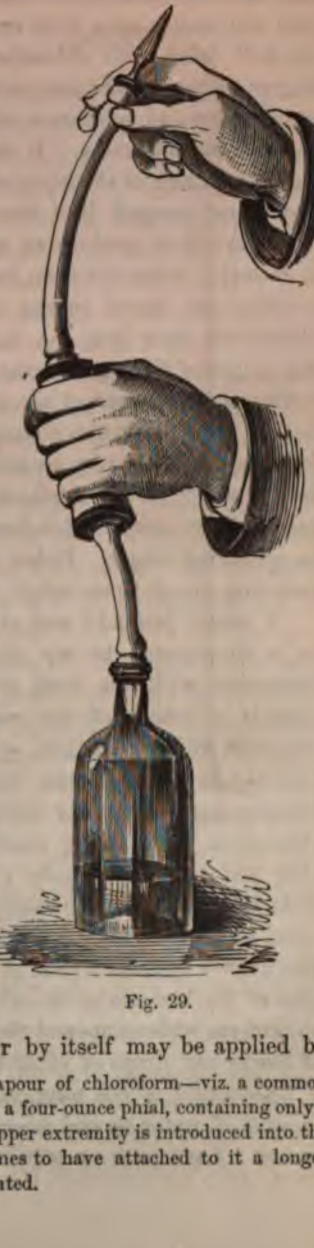


Fig. 29.

Fig. 29. Arrangement for injecting the vapour of chloroform—viz. a common barrel syringe inserted by one extremity into a four-ounce phial, containing only a small quantity of chloroform. The free or upper extremity is introduced into the vagina. For this purpose it is well sometimes to have attached to it a longer portion of terminal tube than is here represented.

means of an ordinary Higginson's (barrel) syringe, which, let me add, is the cheapest, best, and most convenient of all syringes for all purposes. The long or free extremity of the syringe is introduced into the vagina, and the other end of the instrument is inserted into the mouth of a four or six ounce bottle, about one-third or one-half filled with chloroform, and then the application of the fingers to the middle part or barrel, being in the way of alternate compression and relaxation of the barrel, sends speedily a current through the apparatus. If the bottle were full, or nearly so, there would be a risk of the liquid chloroform getting into the instrument and being pumped into the vagina, which it would blister and scald, and thus produce an effect quite the opposite of that which is desired. After the tube has been introduced into the vagina, by working the barrel in the ordinary manner the vapour of the chloroform rises into the instrument, and may be projected for any length of time against the uterus; for you can send through the instrument a current of air or of vapour as easily as a current of liquid. Applied in this manner to mucous surfaces generally, chloroform vapour has a very soothing and sedative effect. Ten minutes usually suffice for the application at one time of either carbonic acid gas or the vapour of chloroform; but patients sometimes desire it to be continued longer. Either of them, or both, may be repeated, if necessary, many times a-day.

I would just add one other remark in regard to chloroform, as a supplement to my observations on the constitutional, as contrasted with the local sedative treatment of the pain which attends a cancer of the womb. It is this, that where opium disagrees with the patient, or where she requires such large doses that she is deterred from using it, you may relieve the pain by bringing her occasionally under the general anæsthetic influence of chloroform, by inhaling small quantities from time to time, and thus you may occasionally procure for her a rest and a respite from her suffering more easily and completely than by any of the usual forms of anodynes. I have seen chloroform when swallowed also answer well for a time as a general sedative in cases of cancer. One of the best modes of exhibiting it is by making a mixture of chloroform with compound tincture of cardamoms, in the proportion of five or ten drops of chloroform to each drachm of the tincture. A teaspoonful of the solution or mixture may be given in a wineglassful of water several times a-day, or whenever the pain becomes severe. Laudanum or solution of morphia may be added to this mixture in appropriate doses, if you wish to combine it with an opiate. Remember to order the dose of the solution of chloroform in the tincture of cardamoms to be added to and stirred up with the wine-glassful of water; for if you reverse this, and add the water to the mixture, part of the chloroform is generally separated and precipitated.

There is another means by which you may sometimes succeed in alleviating the pain of cancer. I allude to the application of some freezing mixture to the part. Dr. J. Arnott, who has directed particular attention to the anæsthetic effects of a low temperature on various parts of the body, has suggested that the freezing of a cancerous part may be of use, not only for soothing pain, but also as a means of curing the disease. And when first experiments began to be made with it, some cases of temporary cure were reported, just as in the last century Ewart and others met with partial and temporary healing of open cancer of the mamma from the continued application of carbonic acid gas. We had a patient with ulcerated carcinoma of the cervix uteri in the hospital a few years ago, whom we treated by the occasional application of freezing mixtures to the os. These generally relieved her pain, and seemed to check the discharge, and make the ulcer partially contract and heal up for a time. But ulceration soon set in again, and the condition of the patient speedily got as bad as before. Yet possibly the application of a refrigerating mixture might prove a useful adjunct to our means of treatment, and might be much more frequently and regularly applied if we could get over the one great objection to its use which lies in the difficulty of its application. At present the method employed is to introduce a speculum into the vagina, and through this to apply to the os uteri, in a muslin bag, a freezing mixture. The mixture most commonly employed consists of two parts of ice to one of common salt. The ice must be pounded or bruised, and when thoroughly mixed up with salt in the proportion I have just stated, and applied in a muslin bag to a part for a certain length of time, the circulation there is stopped, and the part becomes cold, pale, and insensible. This condition remains for a short while after the removal of the bag, and then the parts gradually return to their previous condition. Perhaps some simpler and more manageable method of applying great cold may yet be devised, and if this do happen, it may prove a valuable boon. For we know that the application of ice, or, to speak more correctly, of a temperature at or below the freezing point, to other parts of the body, has the effect of temporarily alleviating pain, or temporarily inducing an insensibility, during which some of the slighter surgical operations can be performed without causing any pain to the patient. Thus I have lately seen two gentlemen have each several teeth extracted without pain, from having their gums previously frozen. One of these gentlemen, my friend Dr. Small, from whom seven teeth were extracted after a stream of water of a temperature of from 10° to 20° Fahrenheit had been for some time allowed to pass through a thin metallic box accurately fixed to his gums, certainly made very wry faces during the operation; but he explained afterwards, that the contortions of his countenance were not excited by pain, but by the mortal terror he was in at every application of the forceps, lest the "grunch" which he distinctly felt should be accompanied by pain. If, I repeat, we had some simpler and easier means of freezing the os uteri and other parts affected with cancer, we should more frequently perhaps have recourse to this expedient. As yet our only means are nothing but a source of irksomeness to the patient and of difficulty to the practitioner. It has always seemed to me that solid carbonic acid applied in a caoutchouc bag, or otherwise, and mixed perhaps with ether, ought to be the most convenient and best freezing agent for producing local anæsthesia in the practice alike of the dentist, the surgeon, and the accoucheur, and that we may find some easy means of applying this to the os uteri; but I have not yet been able to obtain the acid in the solid state, so as to have an opportunity of reducing the theory to practice.

Patients with cancer of the uterus will often require your medical care for other forms of distress and suffering than the mere local uterine pain connected with the disease. They have sometimes their sufferings aggravated by a tendency to constipation, particularly when they first begin to use opium, which is kept up in the later stages by mechanical obstruction of the bowel from the spread of the carcinomatous deposit. Gentle aperients, or what often serves better still, mild enemata, are required under these circumstances. In the same way the bladder is apt to be irritated during the progress of the deposit, and you will find it occasionally necessary to relieve the symptoms of dysuria with infusions of uva ursi, bucku, etc., and with the addition of alkalis or acids, as indicated by the condition of the urine. Besides, the secondary or sympathetic pains which may spring up in different parts, and of which I have already told you, occasionally demand for their alleviation local anodyne liniments or plasters, or even the injection of a few drops of the watery solution of morphia into the subcutaneous cellular tissue of the affected part. Occasionally you will find that they will disappear after the application of slight caustics or sedatives, such as a solution of nitrate of silver, acid nitrate of mercury, and the like, to the ulcerated surface of the cancerous uterus.

2.—*Measures calculated to arrest the attendant Hemorrhages.*

But there are other indications which require to be fulfilled besides that of the alleviation of pain. Thus you will sometimes be called upon to check and counteract the hemorrhage which occasionally occurs to an excessive and exhausting extent in cauliflower excrescences and other malignant diseases of the cervix uteri. In these cases you have large, tortuous, thin-walled vessels, coming up in loops towards the surface of the papillæ, and merely surrounded by radiating layers of epithelial-looking cells, as shown in Virchow's memoir on *Cancroids of the Os Uteri.* From these vessels, which are very liable to injury, profuse floodings readily occur, debilitating and destroying the patient, who would not be so rapidly worn out by the disease if we could always manage to arrest them. Such a flooding, let me again repeat, is often the first symptom that attracts the patient's notice. It is apt frequently to recur in some cases, rapidly ruining and running down the patient's health and strength, and not unfrequently proving the more immediate cause of her death. This bleeding, therefore, you will often be called upon professionally and practically to abate and arrest; and as one means of attaining your object, you may occasionally require to have recourse to plugging of the vagina. But a mere plug of lint or sponge will not always suffice; you will sometimes have to medicate them with some agent which has the property of coagulating the blood. Some have recommended the use of a concentrated tincture of iodine as possessed of this property in a high degree. Others have spoken in favour of a strong solution of nitrate of silver. In either case it has usually been proposed to apply the medicaments through a speculum introduced into the vagina, and pushed up to the cervix. But when I stated to you, in reference to the diagnosis of uterine cancer, that the speculum was a useless instrument, I should have added also that it was a dangerous one, for, coming in contact with the vascular mass, it almost necessarily excites more or less hemorrhage, or aggravates it when it has already been established; and we gain a very important point, if, in the application of our styptics, we can dispense with its employment. We have two remedies, the application of which is easy, and in almost every case is perfectly sufficient. One of these is tannin, which, when applied in the form of a fine powder through a small tube, or mixed up in the form of a medicated pessary, serves as a valuable means of coagulating the effused blood, and thus preventing the further flow. Matico and other vegetable astringent washes are useful merely in proportion to the quantity of tannin which they contain. But we possess a still simpler and surer styptic in the perchloride of iron, which I generally use as made at my suggestion by Messrs. Duncan and Flockhart, druggists, dissolved in glycerine. A saturated solution of it in glycerine is more adhesive to the surfaces with which it is placed in contact, than the solution of it in water. Perchloride of iron was proposed, as you know, by some physicians and surgeons on the Continent, not very long ago, as a preparation which—when injected into the sac of an aneurism, or the cavity of a varicose vein—would produce coagulation of the blood in them, and so lead to the permanent cure of these morbid states. For stopping the hemorrhage from leech-bites, it is the best and readiest agent we possess; and for arresting the bleeding from small orifices over an extended surface, such as exists in piles, I know no better remedy. A gentleman in our profession, for whom I have a very high regard, told me lately of the great success which had attended its use in his own wife, who had long suffered from internal hemorrhoids, which frequently came down and bled to a great degree. Six months ago she had a very bad attack, at a time when her husband happened to be from home. There had been much hemorrhage, and she was reduced to great weakness and faintness. Though the wife of a doctor, she was one of those ladies who have a great and salutary aversion to seeing doctors professionally; and so, when she sent one of the members of her family to ask me for something to relieve her, I sent simply some perchloride of iron in glycerine, with instructions to apply it on a piece of lint. The bleeding was checked by this means at once, and her symptoms relieved; and, what is better still, the hemorrhage has never since returned. In connection, I say, with hemorrhages from the uterus, it is likewise a most valuable agent, and may be applied in various ways. It deliquesces very readily, so that it cannot be kept and applied in the form of powder; but it may be made up for use into a medicated pessary. I apply it most frequently, however, on some lint or on a piece of sponge, to which a string is attached for its easy removal afterwards. Introduce a piece of sponge or lint partially dipped, or rather wetted in its centre, in glycerine saturated with perchloride of iron, into the vagina; push it up to the os uteri, and leave it there for twenty-four hours; and usually you will find this result, that the bleeding is completely arrested, and there is no recurrence of it for a time. I sometimes see a patient at present in whom the hemorrhage from an ulcerating cancroid of the cervix had been allowed to go on for three months, under the idea that it was only an ordinary menstrual discharge of unusually long duration. Early in my attendance upon here there occurred a sudden and profuse drain, which rendered her almost pulseless. A sponge was applied, steeped in the solution in the manner I have told you, which at once put an end to the bleeding. There has been no recurrence of hemorrhage from that time to the present—a period of three months; but the disease is progressing in its fatal course, and lately has perforated the bladder, so as to allow all the urine to escape per vaginam.

3.—*Measures calculated to counteract the Offensiveness, etc., of the attendant Leucorrhœal Discharges.*

Another symptom which you will sometimes find it necessary to do something to relieve, is the fetid and acrimonious discharge. The odour it exhales is occasionally sickening to the last degree; the very breathing of it fevers the patient; and therefore the discharge must be checked, or its effects counteracted as far as possible. This may be effected in some instances by the frequent injection of a weak solution of chloride of zinc, in the proportion of a grain to the ounce of water; or one or two grains may be applied occasionally in the form of a medicated pessary. Or you may endeavour to fulfil the indication, as we have attempted it in the two cases in the hospital, by using pessaries containing from five to ten grains of M'Dougall's disinfecting powder. This deodorising powder was discovered, not by Mr. M'Dougall, but by Sir Andrew Smith, the late director of the Army Medical Department. It contains, I believe, as its active ingredients, sulphite of magnesia and lime, with the addition of five per cent of carbolate of lime, and has the property of precipitating all fetid and decomposing animal matters in foul waters, etc. When applied here in the form of a pessary or lotion it is of great use in relieving the odour, and serves at the same time as a cleansing and non-acrid application to the ulcerating surface. Pessaries, containing each five grains of crystallised carbolic acid, may be employed, and are probably the best and simplest of the deodorising agents.

Sometimes the vaginal discharge in cases of carcinoma uteri is, for a long period, watery and serous, without offensiveness or acridity, but weakening and detrimental from its great abundance and copiousness. This occurs particularly in instances in which the disease has a warty or cauliflower character. Such patients occasionally require to use many napkins each day in order to absorb this excessive serous discharge as it escapes from the vagina. In these cases the abatement and arrest of this profuse and debilitating drain becomes occasionally an important indication of treatment; but it is an indication which it is by no means easy to fulfil. Sometimes the assiduous and repeated use of astringent vegetable or mineral injections has the desired effect. More frequently their effect is only either very partial or very temporary. In order that they may be successful, you generally require to change every few days from one astringent to another—as from a solution of tannin, or from a strong infusion of oak-bark or green tea, to a solution of sulphate of zinc or sulphate of alumina and potash—one of the least irritating and most astringent of all being a solution of the so-called aluminated iron, or sulphate of alumina and iron, in the proportion of three or four grains of the salt to the ounce of water. Sometimes these astringents answer more effectually if the patient apply them in the form of a small plug of sponge dipped in the fluids or solutions.

In all cases of carcinoma uteri, accompanied with discharge, due cleanliness and frequent ablution of the external parts and lower portion at least of the vagina, is a matter of moment, with the view of obviating the disagreeable and irritating effects of the acrid fluid which is passing over them, and adds greatly to the comfort of the patients. Sometimes the mucous membrane of these parts and the surrounding skin can be protected much from the irritation of profuse and irritating discharges by the free application of liniments or ointments after each use of the bidet, or after each washing. Equal parts of glycerine and simple ointment, or of glycerine and olive-oil, or of lime-water and olive-oil, often answer this purpose well.

Before I conclude these observations on the palliative treatment of carcinoma uteri, I must add one observation, lest my remarks may have misled you, so as to make you too officious in your management of your cases. Do not unnecessarily oppress your patients with the *nimia cura medicinæ.* In instances where the pain of the disease is not very great, nor the bleeding nor discharges at all great, you will perhaps only aggravate the one and the other by unnecessary and meddlesome local treatment. You will frequently find cases of uterine cancer, particularly those of a slow type, go on better without any local treatment at all than with it. Such patients are often happier and more comfortable when cleanliness merely is duly attended to, and nothing special in the way of treatment is attempted or done. Reserve the palliative local measures I have spoken of for those cases—and they form a large class—where such measures are really called for by the severity of the attendant symptoms.

But has nothing been done, and can nothing ever be done, in this terrible disease, in the way of surgical or radical treatment? I shall try to answer that question in my next lecture.

LECTURE X.

ON CANCER OF THE UTERUS—*Continued.*

ITS SURGICAL TREATMENT.

Two surgical operations have been proposed and practised in some cases of cancerous or cancroid diseases of the uterus—viz. *first*, extirpation of the whole organ; and, *secondly*, extirpation of the diseased cervix only. The first of these operations need not detain us long, for I have very little to say regarding the

Extirpation of the entire Uterus.

Some twenty or more cases have been placed upon record where this operation was performed, but with such disastrous results as to hold out no encouragement whatever to its repetition, but rather to serve as a loud warning against it. Judging of it *à priori*, we should regard the operation as unjustifiable, and experience serves only to confirm the judgment; for where patients have not died of the operation itself, the disease has soon recurred and proved rapidly fatal. Most of the patients on whom the experiment has been tried have died immediately of the operation or its consequences; and of the only three or four who did not, all, excepting one, who lived nearly a year, have died within two or three months of its performance, from the disease returning, or rather from its continuing to spread from a spot from which it was found impossible to eradicate it. The operation has been performed by cutting through the abdominal parietes, and extirpating the uterus from above; and also by dragging it down through the vulva, and excising it from below. The unfortunate patients have died in some cases of shock; in others of hemorrhage, primary or secondary; in others of inflammation and surgical fever. I have always said that the operation should never be dreamt off unless in those cases where the body or fundus of the organ is alone affected; for when cancer is seated in the cervix it has usually spread to the neighbouring parts before it is recognised; and once it has extended beyond the bounds of the organ in which it began, there can be no hope of a complete eradication. But even when the cancer is confined to the body or fundus, extirpation of the uninverted uterus is such a hazardous operation, that I have no hesitation in saying that it should even then be rejected as an utterly unjustifiable operation in surgery.

Excision of the Cancerous Cervix Uteri.

But another operation has been proposed for the radical cure of cancer, which is not by any means so fatal, and which has occasionally been performed with most satisfactory results. It is applicable, however, only to those very rare cases where you find the disease seated in the lips of the cervix and fairly limited to the vaginal portion. In these cases it is usually confined almost entirely to one lip, most frequently the posterior, leaving the other almost free; just as when epithelial cancer attacks the mouth, it usually begins in the lower lip, and if it spreads to the upper, does so only to a very inconsiderable degree. You will sometimes see cases of cancroid disease of the cervix where the growth is of a size as large as the fist; where it is seated entirely in one of the lips; and, which is of still greater moment, where it has not extended upwards beyond the line of reflexion of the vaginal mucous membrane upon the cervix uteri. It is in such limited and defined cases only that you can hope to produce a radical cure of the disease by amputating the cervix above the part where it has been infiltrated; or, let me rather say, may hope to stay the progress of the disease, and prevent its recurrence for a time. And when it does return afterwards, it does not always make its appearance again in the same part at all, but attacks some different and distant organ. The operation only came into vogue in the beginning of this century; was first performed by Osiander, and afterwards by Dupuytren and others. It was speedily carried to an extravagant excess by Lisfranc; and we find Dr. Mott, the celebrated American surgeon, recording this against him, that on his visits to Paris he found Lisfranc latterly curing, by the application of nitrate of silver, the kind of cases of diseased cervix uteri in which he had formerly employed amputation of that part. In other words, Lisfranc had used this operation in instances of chronic inflammatory disease of the cervix—an affection in which assuredly no such heroic and dangerous treatment is necessary. The operation, let me distinctly tell you, is one which can be employed only in very few cases of cancroid disease of the cervix, seeing that it is only when you can catch the disease, so to speak, before it has reached the line of reflexion between the cervix and vagina, that you can amputate with any hope or prospect of success. When the disease has begun to creep along the wall of the vagina, or has passed high up into the cervix, the operation is of no avail to check it.

Mode of performing Amputation of the Cervix Uteri.

1. *By means of Cutting Instruments.*—As regards the operation itself, it used to be performed in a much more clumsy manner than it is necessary to pursue now. I show you here some casts and wet preparations of the diseased cervix uteri, which I have amputated at various times according to the old method or by means of cutting instruments. The amputation was effected by inserting a strong volsellum or two into the cervix uteri, carefully and distinctly above the line of the diseased part; dragging down the end of the uterus to the vulva; and then clipping it across above the volsella with a pair of strong scissors. The great secret of success in the performance of the operation seemed to be to seize hold of the cervix beyond the line which marked the extent of the disease, so that by cutting out above the volsella, you might make sure of having no portion of it left. I used to have the patient placed on her face, and to cut across the cervix uteri from behind forwards, in order to avoid wounding the posterior cul-de-sac of the peritoneum which reaches lower down behind the uterus than it does in front between the uterus and bladder. The uterus had to be dragged down, not on the hollow of the sacrum, but straight towards the vulva; and this forcible and long-continued dislocation of the uterus formed often one of the great difficulties in the performance of the operation; and, doubtless, also, was one of the chief sources of danger in connection with it. For cutting across the cervix, Lisfranc and others preferred the knife; but the constant drag upwards of the uterus renders the division of the cervix with the knife irregular and oblique. I have found a pair of strong curved scissors the most convenient instrument, one or two rapid clips with them being sufficient for the detachment of the diseased and a small margin of the healthy cervix. By this means the amputation can be much more rapidly performed before there can occur any effusion of blood to obscure the track of the wound. But in any case you are likely to have some bleeding afterwards, which at times becomes excessive, rendering it necessary for you to plug the vagina firmly, or to apply some styptic.

2. *By means of the Ecraseur.*—But all these difficulties in connection with amputation of the cervix uteri have now passed away; for latterly we have become possessed of a much simpler means, by which we can effect our object without submitting the patient to the dangers resulting from the dragging down of the uterus, or subjecting her to the risk of hemorrhage. The instrument by which this is effected has been lately discovered in France, and it performs its work by an action which its inventor has described as linear crushing. If you will look around you, and mark the improvements that take place from time to time in surgery, and in medicine as well, you will find that they consist often, as here, of the application

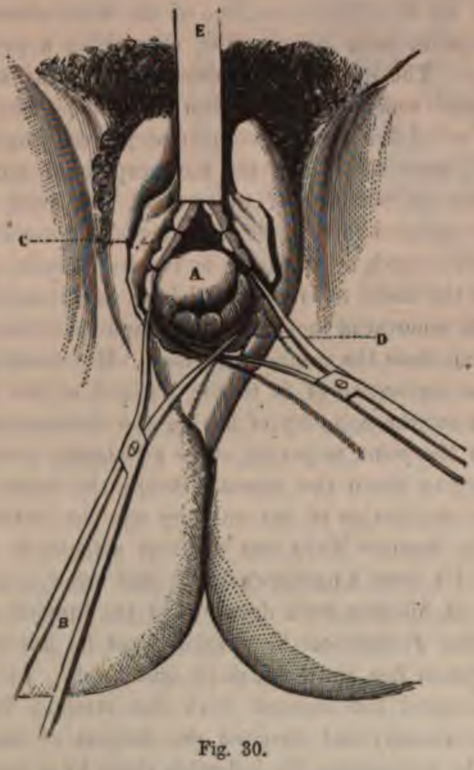


Fig. 30.

Fig. 30. Amputation of the neck of the uterus by means of the straight écraseur. A shows the cervix uteri dragged down to the vulva, by means of Museux's forceps. C D, the chain of the instrument passed round the base of the cervix uteri.—(Chassaignac.)

to actual practice of well-known facts, and of observations which had been made long previously, but which have been allowed to lie hitherto sterile and dormant. Thus it has been regarded as a well-established fact, at least from the time of Cheselden, that when an arm or other limb was torn roughly off, or avulsed by machinery, there generally occurred no bleeding from the lacerated surface and vessels. But no actual use was made of the observation, till M. Chassaignac, one of the most talented of living French surgeons, took up the idea of making a practical application of it. The distinguished discoverer of this new mode of operation, and some of our English surgeons, make use of the instrument called *écraseur* (for we have as yet no English name for it), which I here show you, for the purpose of removing some vascular tumours, portions of tongue, etc. In using it, the chief thing to be attended to is to work it very slowly—moving it only at the rate of a notch every fifteen or twenty seconds, so as not to cut through the tissue too rapidly. I have seen it employed several times for the removal of morbid growths, and never saw any marked bleeding occur from the wounded surface. M. Chassaignac himself proposed the application of it to the removal of the cervix uteri and pointed out the necessity of having the instrument made with a curve near the point, to permit of its adaptation to the part; or else of dragging down the uterus through the vulva in order to admit of the application of the ordinary straight instrument. But I believe Mr. Spencer Wells was the first actually to perform the operation. He used Charrière's chain and screw. You will find an account of his case, with drawings of the tumour, in the ninth volume of the *Pathological Transactions*, and he has informed me that the woman has since remained quite well. In one case in which I operated last summer with the straight instrument, I avoided the necessity and obviated the dangers of dragging down the uterus, by supplanting the inflexible chain by a piece of twisted wire, which could be bent at right angles, or in any degree necessary for its proper adaptation to the cervix, and which is of sufficient power to crush through the soft tissues in its embrace. I have here an instrument which I have recently got made to effect the same object as the écraseur of M. Chassaignac, but of a different and more simple construction, the efficient power here being a screw, and the crushing part consisting of a strong coil formed of twenty or thirty strands of fine iron wire, such as we use here for stitches and ligatures, twisted together. It has, in other words, a flexible wire rope, instead of an inflexible jointed chain, as its (see Fig. 31) dividing agent. There is still another bloodless mode of amputating the cervix uteri, which has been had recourse to in modern times, for this part has now been once or twice excised, viz.—

3. *By means of the Galvano-caustic Wire.*—Several years ago, Mr. Marshall of University College, London, first ingeniously suggested the use of platinum wire heated by a strong current of galvanism as a new caustic and cutting instrument in surgery. It has been employed on the Continent, particularly by Middeldorpf, the Professor of Surgery at Breslau, for the excision of tumours, broad-based polypi, etc. He has removed the diseased cervix uteri by surrounding it above with a loop of platinum wire, then heating the wire by sending a powerful current of galvanism along it, and immediately dragging it gradually through the tissue by means of an appropriate handle or instrument. It has been argued, and perhaps not without justice, that this mode of amputating the cervix uteri has the double advantage of being rapidly performed, and of being free from all risk of hemorrhage. But it has the disadvantage of requiring a battery of enormous power to heat a wire sufficiently long and strong to make its way through so much living tissue, and although the apparatus has been pretty extensively employed of late in Vienna, Munich, Wurzburg, and other Continental hospitals, it has not yet been introduced, so far as I am aware, into any of the hospitals in Britain. There are various

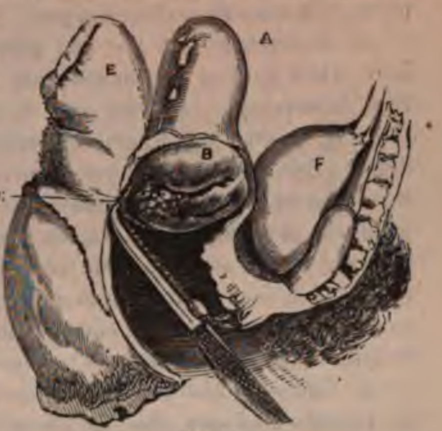


Fig. 31.

DANGERS ATTENDANT UPON AMPUTATION OF THE CERVIX UTERI.

Before stating to you some facts by which you may judge of the propriety of ever amputating the cervix uteri in cases of limited

Fig. 31. Section intended to show how amputation of the cervix uteri may be performed without previously dragging down the uterus. A, Body of the uterus. B, Neck of the uterus, surrounded by a loop of twisted wire. C E, The rectum. F, The bladder.—(Altered from Chassaignac.)

cancerous or cancroid disease of this part, I would beg you to remember, first of all, that the operation is one which is by no means free from immediate dangers.

1. *Hemorrhage.*—In the first place, there is the risk, particularly when cutting instruments are employed, of excessive and fatal hemorrhage. I never saw a case which proved fatal by bleeding, or even one where hemorrhage occurred to any alarming degree; but such cases have occurred, and it is well that you should be on your guard against this accident. With proper and methodic plugging of the vagina, assisted particularly by such a powerful styptic as perchloride of iron, I believe you will in every case be able to prevent it from proceeding to a fatal extent. But secondly, another alarming complication may occur and prove fatal in spite of all your endeavours to counteract it, viz.—

2. *Collapse.*—Lisfranc has recorded two or three instances where his patients died soon after the operation of a kind of faint or collapse, setting in suddenly without any premonitory symptoms, and sometimes rapidly carrying off the patient. I once saw this fearful symptom occur after amputation of the cervix uteri, in the case of a lady on whom I had performed the operation, along with Drs. Watson and Wilson of Glasgow, whose patient she was. The tumour removed was a cauliflower excrescence or epithelial cancer, of the size of a lemon, growing in the anterior lip of the uterus, a portion of the higher and healthy tissue of which was, of course, excised along with the cancroid mass. The loss of blood was not great, and no bad symptoms occurred for two hours after the operation, when the patient began to feel rather faint and became very restless. By the end of another hour the collapse was so great that the pulse could not be felt; the first sound of the heart was inaudible; the extremities were cold; there was intense thirst, and occasional violent vomiting. This state of collapse lasted, despite of all the means employed, for many hours, and for fifteen or sixteen hours the pulse could not be felt at the wrist. After the symptoms of collapse passed away, the patient made a good recovery, and her general and uterine health soon became re-established. I have seen the state of collapse after excision of the cervix prove fatal by itself, and independently of any other complication. A few years ago I operated on a patient in the hospital for the removal of a limited cancroid disease of the cervix uteri, and where at the time of the operation everything promised fair to yield a good result. The disease was distinctly limited to the lips of the womb; ampu-

tation was effected above the line which seemed to mark its extent without more than ordinary difficulty, and was followed by almost no bleeding whatever. The patient was well and in good spirits when I left her half-an-hour after the operation was completed; but when Dr. William Ziegler, who was then clinical clerk, went to visit her some four or five hours afterwards, he found her pulseless, cold, and collapsed. He came at once to fetch me to see her; but when we got to the hospital she was already dead. On making a post-mortem examination, we could find only the smooth bloodless surface of the fresh-made wound; but no hemorrhage, no injury, and no morbid change which could at all account for the sudden death. The patient died, in fact, of collapse; and this is an accident which you sometimes see occurring after other operations. I met with it once, for example, in the case of a distinguished friend of mine, on whom Mr. Syme had performed his operation of perineal section. On the second night after the operation, he was seized with alarming symptoms of depression of the circulation, coldness and clamminess of the surface, weakness, or rather absence of the radial pulse, etc. In about twenty-four hours these symptoms disappeared, as a profuse eruption of herpes about the mouth broke out. I have seen the same collapsed condition occur two or three times after the emptying of ovarian cysts; and I have met with it once or twice in women soon after the termination of a natural labour. The first time that I saw it after parturition, was in a patient who had quite a natural and easy delivery, and had suffered from no unusual amount of hemorrhage. When I saw her in this collapsed condition, an hour or two subsequently, I could not be certain whether she was merely in a state of chronic faint, or pulseless collapse, or whether there might not be some bleeding going on into the cavity of the peritoneum. I had made sure there was no collection of blood in the uterus or vagina. It is an accident which seems peculiarly liable to occur after operations or injuries about the pelvic organs; and no sufficient explanation of it has yet been offered—nor does it even appear that sufficient attention has yet been given to it. I am not sure but that in amputating the cervix uteri, by obviating the necessity of forcibly dragging down the uterus from its position in the pelvis, we do something towards the prevention of this alarming and dangerous complication.

3. *Wounding of Peritoneum.*—A third danger which patients subjected to amputation of the cervix uteri have to encounter is that resulting from the injury sometimes occasioned to the peri-

toneum during the performance of the operation. I have never seen any misfortune arising from this cause, for in the only instance in which I met with such an accident, inflammatory changes of long standing had led to adhesions of the uterus to the rectum, and to a multitude of puckerings and foldings at the thin posterior part of the roof of the vagina, so that when a small oval portion from the surface of one of the folds or projections was accidentally cut off, no spread of any inflammatory action that may have been set up could take place along the adherent peritoneal surface, and accordingly no bad effects ensued. When the amputation is affected by means of the écraseur, however, danger from this source becomes more imminent, from the difficulty which even the most skilful operators experience in preventing the loose tissues above the cervix from being dragged within the embrace of the crushing chain or rope, and from being mangled and torn there. This accident occurred and proved fatal in the hands of perhaps the most dexterous living surgeon in Germany; and I can hardly see how you can make sure of avoiding it in those cases where you are to employ the écraseur of Chassaignac, unless by putting some pins through the cervix uteri below the point at which you mean to apply the loop of the chain. By transfixing the cervix in this way you could, perhaps, regulate the exact height at which it was removed by the écraseur in the same way in which you can regulate the height at which it is to be removed by the knife by the use of the volsella. In order, however, to fix such pins, the operation would require to be complicated by first dragging down the cervix uteri, and then their introduction would not be so easy as the application of the volsella.

4. *Surgical Fever and Inflammation.*—In relation to the dangers attendant upon amputation of the cervix uteri, let me, lastly, observe that some patients, but not very many, have died of peritonitis, or that form of surgical fever which is liable to occur and prove fatal after every form of operation where a cutting instrument is employed.

ADVANTAGES OR RESULTS TO BE ATTAINED BY AMPUTATION OF THE CERVIX UTERI.

Such being the drawbacks and dangers attendant on this operation, is it, you may ask, useful and advisable in any case to have recourse to it? To this question I unhesitatingly answer, that there are cases in which amputation of the cervix uteri is both a useful and a commendable procedure; for by means of it you can sometimes eradicate the disease, and oftener you can stay its progress for a time. As in other operations for the excision of local cancers, here also the results will occasionally disappoint your hopes. The operation, I should already have told you, is not always a very painful one for the patient, and does not always even require chloroform, as was proved by a case in which I operated last summer with the écraseur, along with Dr. Ziegler. The patient was scarcely aware of any painful sensation which could lead her to suppose that a severe operation was being performed. You will prolong the life of your patient by this operation in some instances for several months, while in others the prolongation of her life is to be counted rather by years. In either case you rid your patient for a time of a painful and distressing disease, with the temporary restoration of the general health, and in some rare instances you may hope to work for her a more perfect and permanent cure. The patient of Dr. Watson, to whom I have referred, lived for three or four years after the operation, and had no recurrence of the disease in the original seat of it, but died in consequence of its appearance in the mesenteric and other abdominal glands.

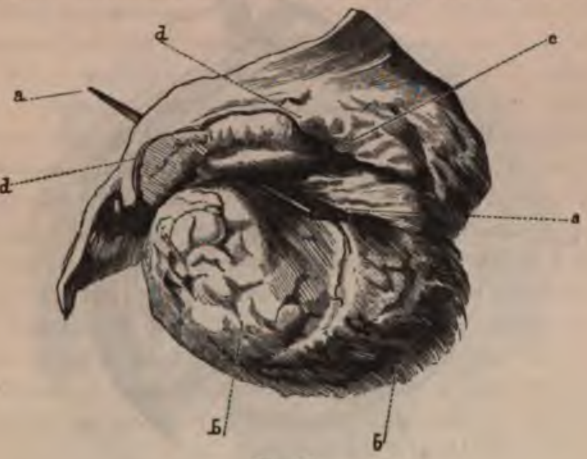


Fig. 32.

Fig. 32. Cervix uteri excised for cancroid disease. *a a*, Piece of whalebone passed through the os and along the canal of the cervix. *b b*, Cancroid tumour growing from the posterior lip. *c*. Anterior lip. *d d*, Line showing the extent to which the disease has extended.

The patient from whom the cancerous cervix uteri was removed, of which I show you these drawings, lived for four years after the operation in perfect health, and died of acute diarrhœa or dysentery.

At the time I operated upon her the patient had already suffered for a considerable period from all the usual symptoms of the disease, in a very aggravated degree. She had experienced much pain; the discharge had been very profuse and acrid, and for some days before I first saw her, at Kincardine, with Dr. Wilson, most profuse menorrhagia had been going on, which no amount of plugging, and no kind of astringent or cold application, seemed to be sufficient to arrest. Though naturally a strong and robust woman, she was, in consequence, soon reduced to such an extreme state of weakness and exhaustion, that she required to be lifted with sheets when they ventured from time to time to get her bed made dry, and she became sick and faint whenever it was attempted to raise her head. In this case the posterior lip of the os uteri was enlarged, indurated, and roughened, and the surface of it and of the anterior lip was the seat of irregular ulceration. The base of the cervix, however, appeared to be sound, and I therefore excised it, making the line of incision above the seat of the disease, and so removing all the mor-

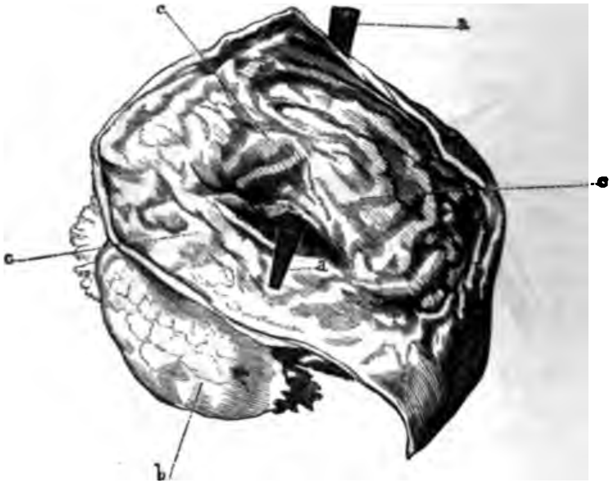


Fig. 33.

Fig. 33. Same cervix uteri as in preceding figure viewed from surface of amputation *c c c*. *a a*, Whalebone probe through os and cervix. *b*, Cancroid mass on posterior lip.

bidly affected part. When the cervix had been removed, the posterior lip was found to be enlarged, in the form of a tumour, to the size of a pigeon's egg, rough and tuberculated upon the surface. The base of the tumour upon the posterior lip, and some part of the unenlarged anterior lip, were the seat of ulceration, marked by an acute sharp edge. The diseased structure of the posterior lip slightly passed the angle or commissure of the left side, and partially invaded the anterior lip. Dr. Anderson, professor of medicine in the Andersonian University of Glasgow, who was at that time devoting his attention to the histological study of these growths, detected in the diseased structure all the usual microscopic and anatomical characters of *Carcinoma fasciculatum*, as described by Müller. The patient rallied rapidly after the operation, and lived, as I have already told you, for four years afterwards, in the enjoyment of the most perfect good health.

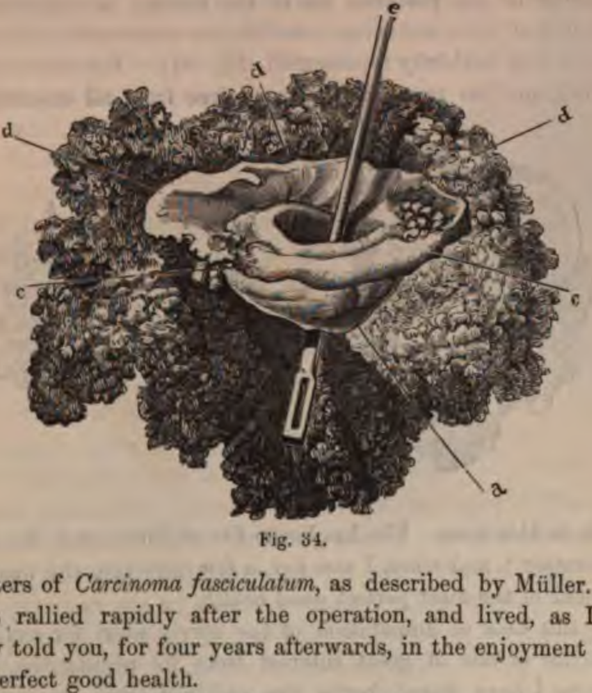


Fig. 34.

If it be true, which has been stated, that cancer is more constantly primary in the cervix uteri than it is in any other organ or part of the body, then, when we catch it in a stage still admitting of removal, we may hope for a better result after the operation here,

Fig. 34. Appearance presented by a cervix uteri amputated for cauliflower excrescence of the posterior lip. *a*, Healthy anterior lip. *c c*, Base of anterior lip. *d d d*, Portion of healthy vaginal mucous membrane removed along with the cervix.

than after the excision of a cancerous growth from almost any other part. The great drawback is, that here the disease is hidden from view, and generally does not attract attention till it has attained such a degree of development as to excite grave symptoms, and such a spread as to render its extirpation an operation of danger and uncertainty.

But the best case of all was that in which I first performed the operation, now eighteen years ago. The patient had been under the care of Dr. Lewins, at Leith, and when I first saw her, in 1840, she seemed to be at death's door, so reduced was she by the hemorrhage and excessive serous discharge constantly going on from a cauliflower excrescence of the posterior lip of the uterus. I amputated the cervix at that time, removing a cauliflower excrescence of the size and form here faithfully represented (Fig. 34). The patient rapidly recovered, and has remained well, and free from all cancerous disease, up to this time. She has borne five children since the date of the operation ; and when I saw her, a few days ago, she was in the enjoyment of the most perfect good health.

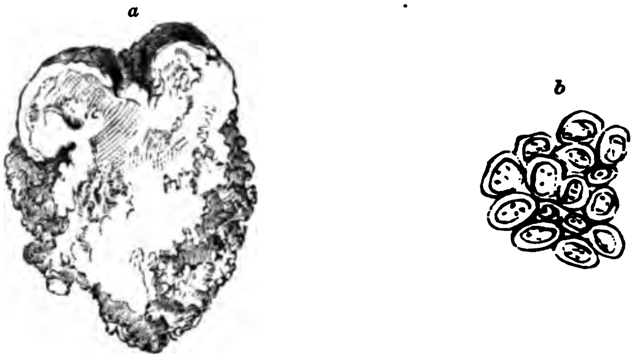


Fig. 35.

As this case of amputation of the cervix uteri for cauliflower excrescence is one of great interest from its results, the patient having, as I have stated, borne five children since the operation, and being still perfectly well, eighteen years after its performance; perhaps you will pardon me for adding, that the microscopic structure of the excrescence was carefully examined at the time by Professors Reid and Goodsir. We could find in it none of the caudate or spindle-shaped bodies which were then supposed

Fig. 35. *a*, Appearance presented by a section of the tumour. *b*, Microscopic appearance of the cells which constituted the chief mass of the tumour.

by Müller and others to be distinctive of cancer, but which we now know not to be necessary histological elements of cancerous tissue. On the contrary, we found it composed of groups of cells, each of them enclosing nuclei and nucleoli. These cells were, to use the modern nomenclature, epithelial cells, and consequently the excrescence was an example of epithelial cancer. To prove this, compare the drawing of the histological appearances from this excrescence (see Fig. 35), which I published in 1841, with the drawing of the histological appearances which Virchow published lately in his collected Memoirs (see Fig. 36) of epithelial cancer of the cervix uteri, and you will find the two perfectly identical. In originally publishing an account of the case in the *Edinburgh Medical and Surgical Journal*,[1] five or six months after the performance of the operation, I stated that "I undertook the amputation of the diseased part, with strong doubts as to its ultimate success. The patient's peace of mind was broken, and her constitution was so rapidly breaking down under the constant, profuse, and weakening discharges which afflicted her, that she would in all probability have soon sunk. Immediately after the operation was performed these discharges completely ceased, and have never since returned. Her health and strength have, in the meantime, been restored to her, and she is at the present moment advanced beyond the middle period of her pregnancy. The morbid characters of the diseased structure that I removed are such, certainly, as to render its future regeneration not at all improbable; but as yet there are no local appearances of its return; and taking the very worst view of the case, there seems to be no reasonable doubt but that the operation has restored the bodily comfort and prolonged the life of the patient, if it has not entirely freed her from the risk of a future return of the disease." When I penned these remarks, some few months after the operation was done, I had no very great hopes that eighteen years afterwards I should

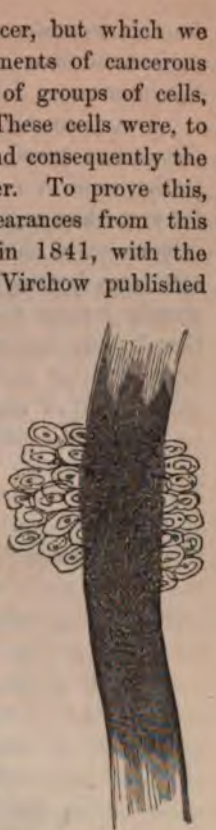


Fig. 36.

Fig. 36. "A single, very wide, and thin-walled blood-vessel, from a cauliflower excrescence on which the cells are lying."—*Virchow*.

---

[1] Vide *Edin. Med. and Surg. Journal* for 1841, for a more particular account of the case.

be able to state, as I have stated to you already to-day, that the patient continues perfectly well, and has borne several children in the interval.

You must not suppose, however, that those cases where the disease has spread its roots so widely as to have become inaccessible to the knife or écraseur, are altogether beyond the reach of art; for even then we have at our command a means by which we can, in some cases, check the progress of the disease for a time, and in rare cases destroy it altogether. By the same means we can occasionally remove the disease more easily and more safely, perhaps, than by any surgical operation, even so as often to supplant the use here of either the scalpel or écraseur. I refer, of course, to the employment of caustics, the consideration of which must, however, be reserved for another lecture.

LECTURE XI.

ON CARCINOMA OF THE UTERUS AND MAMMA.

TREATMENT BY CAUSTICS.

NOT long ago, I took occasion to show you a poor woman, who was about to return to her home in the Highlands, and in whom you saw on the site of the right breast a simple granulating healing ulcer. As I then stated to you, she came to me a month or six weeks before with a large elevated carcinomatous growth in the same situation, ulcerated on the surface, fungating at some parts, and bleeding freely when roughly handled. This was treated by the introduction first of a piece of caustic potass, which caused a portion of the tumour to slough away, and then by the application of a mixture of sulphate of zinc and sulphuric acid, in the manner of which I shall have something more to say anon. Large masses of the tumour, some of which I showed you, were by this means made to slough and come away, till all the infiltrated tissues were removed, and a simple cicatrising sore was left. Only at one corner there was a hard knot; and with respect to it, I gave the patient a note to her own doctor, calling his attention to it, and desiring him to have it removed by the same agent as had been used for the eradication of the rest of the mass.

Taking, then, this case into consideration, I propose to speak to-day of cancer as it occurs in the two organs conjunctly—in the uterus, to wit, and in the mamma—in relation to the question of the propriety of removing the disease by the knife or by caustics.

I am not going to speak just now about the nature, the symptoms, or the diagnosis of cancer, as it occurs in the mamma, but only of the treatment of the disease; for here observation and experiment are both more easy, and their results have been more abundantly recorded than is the case with regard to cancer of the uterus; and the experience obtained from the treatment of the disease in the one organ may serve equally well to guide us in our treatment of it as it occurs in the other. The first question that meets us in our proposed path of inquiry is this—

SHOULD CANCERS OF THE MAMMA BE REMOVED BY THE KNIFE!

The propriety, let me then remark to you, first of all, of having recourse in any case to the surgical removal of a cancerous tumour has been long a subject of great discussion, and very conflicting and contradictory are many of the statements that have been advanced in support of the different views that have been entertained. Those who object to all interference with cancerous growths, do so on the ground of the great liability of the disease to return and prove fatal; and very startling bodies of facts have been adduced to show, with almost absolute certainty, that such a relapse should be counted upon. Thus, Dr. Macfarlane, Professor of the Practice of Physic in the University of Glasgow, one of the most unprejudiced and trustworthy observers alive, tells us that he[1] "has never seen a case, even of the most favourable description, in which the disease did not return, although every precaution was adopted to render the operation successful." And the experience on which this statement rests is far from being very limited. Dr. Macfarlane refers to a hundred and eighteen cases (thirty-two operated upon by himself, eighty-six by friends), and though in the majority the "parts were freely and extensively removed . . . at an early period, and under the most favourable circumstances . . . in many instances no distinct indication of constitutional deterioration being present, yet in all the disease returned, both externally and internally, and proved fatal." Many minds can hardly conceive that not one out of such a number of patients operated on for cancer should have been fairly freed from the disease; but the word of Dr. Macfarlane is entirely to be relied upon. Mr. Mayo, Surgeon to the Middlesex Hospital, declared, as the result of his experience with regard to the removal of scirrhous breasts, that there was a return of the disease in ninety-nine cases out of a hundred, and that, too, where the amputation had been performed under the most favourable circumstances! The great French surgeon Boyer maintained that a permanent cure was effected only in four out of a hundred cases. We are already getting a more favourable view of the results of the operation than Dr. Macfarlane's gloomy statistics would have led us to anticipate; and in the last and best work we have received from France on the diseases of the female breast—that of M. Velpeau—we find that illustrious surgeon stating that he has "more than twenty perfectly reliable examples of radical cure" out of a thousand, in whom carcinomatous mammæ had been extirpated. Even that, as you will perceive, gives after all a favourable result in only two cases out of a hundred; but it is enough to afford encouragement, and you and your patient may both entertain the hope that she will be one of the fortunate few. Those fearful figures of Dr. Macfarlane, I confess always haunt my mind—viz. 118 cases of cancerous mammæ; all the 118 operated upon, and yet in all the 118 the disease recurring and proving fatal. But I feel convinced that this very gloomy and indeed desperate view of the subject is not entirely justifiable; for I find from my own observation, and from inquiries made in different directions, that Dr. Macfarlane's startling statement is not borne out by the experience of others. There certainly are cases of undoubted cancer in which a permanent cure has been effected by ablation with the knife, even if these fortunate cases do not stand in a higher ratio to the unsuccessful ones than from one to four in a hundred. I have myself seen a patient, under the care of Mr. Girdwood of Falkirk, who had been cured of cancer of the mamma by the double extirpation by the knife, first by Mr. Liston, and secondly by Mr. Girdwood. There could have been no doubt in that case as to the nature of the disease, for the tumour was fully developed in its character—large and fungating; at the second operation, a number of diseased glands were removed from the axilla. When I saw her dying of acute accidental peritonitis eight or ten years after the date of the operation, the scar of the wound was firm and healthy—there was no sign or symptom of cancerous disease in any other organ—excision of the diseased part had effected for the patient a permanent and perfect cure. Dr. Malcolm and I were attending together lately, for epithelial carcinoma of the cervix uteri, a lady whose mother is still alive and well, and who had a cancer of the mamma removed successfully eight or nine years ago. That the affection of the mamma in this case was true cancer was ascertained by every applicable test. I have been told of various other similar cases, in like manner, by my professional brethren. And then, in regard to the uterus, there is the Leith case of epithelial cancer, or cauliflower excrescence, of which I have already told you in my last lecture, where a patient has remained free from cancer for eighteen years after the removal of a growth which was pronounced by all who saw it to be mali nant, and which was proved microscopically to be an epitheli cancer.

---

[1] Walshe on *Nature and Treatment of Cancer*, p. 229.

RESULTS OF EXCISIONS BY THE KNIFE.

We have patients, then, in other words, sometimes escaping a obtaining a radical cure of carcinoma of the uterus and mamm when the disease has been removed by the knife. The proportio is no doubt small, very small—not more than one, two, three, or fou out of a hundred obtaining exemption, and the disease returnin sooner or later, in all the remaining ninety-six or eight. But, the there is one other fact which I must here give along with th appalling result; it is this: that you can never predicate which o or two, or three, out of one hundred given cases will prove succes ful; for the happy result has sometimes been attained in cases th looked the most unpromising, where the disease was of the enceph loid variety, open, bleeding, and apparently of the very wor character; and, in some instances referred to by Velpeau, whe Lebert and Röbin, after microscopic examination, had declared th tumour to be of a most distinctly malignant nature.

We have seen that the final history of patients in whom e cision of carcinomatous mammæ has been practised is far from bein a bright one, and affords us little, very little, encouragement to a re petition of the operation; but you must not suppose that in statin the frequency with which malignant disease is likely to recur afte extirpation of the affected part by the scalpel, I stated the on drawback attendant upon such a procedure. For you will find som eminent surgeons maintaining—and I believe Mr. Paget is of the number—that unless you can operate early, ere the morbid mas has attained any high degree of development, surgical interferen becomes not only useless, it becomes positively hurtful, inasmuch a it weakens the patient, and by exciting new action in the seat of th disease, hastens the progress of the malady and shortens the life the patient.

And then you must remember, besides, that the operation itse of extirpation of a cancerous mamma is not without its direc dangers. Velpeau tells us that of a hundred and seventy-si patients on whom excision of the mamma was performed by him, thirty-two died of the operation or its immediate consequences, o nearly one in every five. Now this is a very high mortality, near equal to what has sometimes been stated as the amount of mortality resulting from the severe operation of lithotomy. I am not much acquainted with the statistics of the operation, and the only other figures of any extent which I can at this moment recall, are those given in Dr. Cormack's Journal for 1843, where it is stated that, in the hospital practice of the late Professor Roux of Paris, out of ninety-five cases of the excision of the mamma, twenty died, or rather more than one in every five. So far as I know, no very extended or reliable statistics have been published on this matter in England; but I think the operation is far less fatal with us than in Paris. The only return I could lay my hands on this morning is that of Dr. Reid in the Report of our Infirmary here, where we find it stated that out of twenty-five patients operated on, two died from the effects of the operation, or about one in twelve. But even such a favourable return as this shows that the patient incurs no small amount of danger in connection with the operation itself.

IS THE REMOVAL OF CANCERS BY CAUSTICS PREFERABLE?

We have thus seen that there are two very serious objections to the removal of carcinomatous mammæ by means of excision—viz. the great probability of a relapse, and the degree of danger attendant on the operation; and to these there still remains to be added a third, and that is, the natural fear and horror of the knife so universal among womankind, ay, and perhaps still more so among mankind also. Nor can the cheering prospect of a painless operation, which the use of anæsthetics enables us to hold out to our patient, suffice entirely to remove this feeling; for there are still many people who would rather bear anything than subject themselves, under any circumstances, to the edge of the surgeon's knife. In consequence of the dangers of the operation, and the repugnance of patients to submit to it; and in consequence, moreover, of the good results that have sometimes appeared to attend the empiric use of caustics in the treatment of carcinoma of the mamma, caustics have begun to attract no small degree of notice, and to receive a more systematic and extended application. Various reasons have been advanced for employing caustics in preference to the knife in the removal of cancerous growths.

1. Some surgical pathologists have been inclined to argue that extirpation of malignant growths by means of caustics is not so

liable to be followed by relapse as is the case after removal by excision. The man who has made the strongest asseverations, and who has had also probably the greatest amount of experience in this matter, is Landolphi of Naples, who has destroyed, it is alleged, several thousand cancerous productions by means of caustics. Landolphi is said to aver that his cures to his relapses are in the proportion of three to one: or that 75 out of every 100 patients treated by him permanently recover, and in the remaining 25 the disease relapses. I only wish that I could believe in these alleged results; but be assured there is some tremendous mistake about them. I for one would feel quite content if we could cure by caustics not the 75 per cent, but even 25 per cent of our cases of cancerous mammæ. When proper statistics are attained— for as yet they do not exist—the cases of permanent cure by caustics will not be found, I fear, to amount nearly to 25 per cent; but probably they will be larger than the proportion of permanent cures by the use of the knife.

2. Patients who are imbued with the utmost dread of the knife will sometimes be found willing and ready to submit quietly to the application of caustics for the removal of scirrhous mammæ.

3. The employment of caustics does not necessitate confinement to bed and the loss of time entailed by excision of the gland. The patient is, of course, not equal to any heavy work during the period when the caustics are in action; but still she is not unfitted for every occupation, nor condemned to the unmitigated *ennui* of her bed for a length of time.

4. There is no such fear of a fatal issue from ablation of a tumour with caustics as there is from excision of it with the knife; for in the former method neither ligatures nor sutures are required for arresting hemorrhage from pouting arteries, nor to effect coaptation of the edges of a gaping wound. So that all the principal dangers attending the use of the knife are kept in abeyance by the use of caustics; or if they cannot in every case be prevented, the chances of their occurrence are at least greatly diminished. When you avoid the use of ligatures and sutures, you do away with those chief centres of suppuration and decomposition in a wound which give rise to fatal surgical fevers and pyæmia; and around the mortifying part you are not so liable to have that erysipelas which, as you know, frequently supervenes on incised wounds, and not unfrequently carries off the patient. Some have even averred that erysipelas never occurs in a part where caustics have been employed; but I have sometimes, though certainly very rarely, known it to

occur in such circumstances. It has been stated, moreover, that patients in whom caustics had been employed for the removal of cancerous mammæ, would not die of the disease known as surgical pleurisy. But I know of at least one instance where this complication proved fatal. This was in the case of a Scotch lady, who had one of her breasts amputated here because of a carcinomatous growth in it some years ago. The wound healed for a time, but scirrhous nodules returned in the cicatrix, and for this she went to London, and there for some time caustics were used for their removal, but without much effect. Then she followed a fashion at present very common among English ladies in like circumstances, and went to Paris, there to submit to a more effectual application of caustics. Her husband, when on a short visit to Scotland, told me that the diseased mass had been all removed, and that she was now, it was declared, in a fair way of recovery, and suffered only from constant nausea and vomiting, and from pain in the side. I told him that in all probability the disease had become localised in some internal organ, and that its progress was likely to be rapid. Soon thereafter she died, ere yet the wound left on the separation of the slough was by any means cicatrised; and it was found, on dissection, that the cancer had developed itself in the stomach and other of the abdominal organs, but that a subacute pleurisy had proved the immediate cause of the fatal issue.

Then comes the question, *Which is the more painful—caustics or the knife?* As the patient is in an anæsthetic condition during the operation, the only pain she can experience in the case of excision, is that which she suffers from the subsequent dressings of the wound, and the removal of the ligatures and stitches; so that, on the whole, one would expect this to be the less painful procedure. And yet you will have patients making some most curious statements in reference to this matter. I had lately under my care a lady with carcinoma near the site of the mammæ, which was excised by my excellent friend, Dr. Petrie of Liverpool, some time ago. Two new scirrhous masses sprang up in the same spot, both of which I enucleated and destroyed by caustics, requiring first to remove the skin over them by the same means. Yet this patient has frequently assured me that, though chloroform was used for the operation of excision, the pain which was entailed in the dressing of the wound was far more acute and intolerable than the whole pain produced by the caustics.

Again, in reference *to the time required for the healing of the part,* it has been very often averred that the sore left after the separation of the slough produced by a caustic takes much longer time to heal than the simple incised wound left after excision of a tumour with the knife. This allegation I do not pretend to answer on my own authority, for I have not had sufficient experience to entitle me to give a decision on the subject; but you must allow me to read to you what has been said in reference to this matter by one of our greatest surgeons, Sir Benjamin Brodie. In his *Lectures on Pathology and Surgery*, p. 334, he has these sentences:—"Perhaps it will be asked, Is there not this objection to the use of caustic—namely, that some time is necessary for the slough to come away; then a further time for the healing of the wound? And does not all this make the process more tedious than it would be if the knife were used instead? The fact is, that a wound always heals much more readily after the application of caustics, than after the use of the knife. Take two cases: If you destroy one tumour of a given size with the knife, and the other, supposed to be of the same size, by caustics, in spite of the time occupied by the separation of the slough, the sore in the latter case will be healed sooner than that in the former."

Is the Extirpation by Caustics more complete or lasting than by the Knife?

I have already adverted to the question, as to whether extirpation by means of caustics is more complete and less likely to be followed by a relapse than is excision with the knife, and I have told you what Landolphi has stated in reference to this point. His statements, as I told you, are to be received only *cum grano;* but there are two reasons for believing that the use of caustics will be more effectual, and the resulting cure more permanent, than we generally find to be the case after simple excision. The first is, that the cicatrix left by caustics is much firmer than the cicatrix left by an incision; and the observations of Dr. Young and Dr. Arnott have shown us how beneficial the effect of pressure is in restraining and preventing the development of all tumours, whether simple or malignant. The second is, that the action of caustics is not of necessity confined to the part which mortifies and sloughs away; but there is good reason to believe that their modifying influence probably sometimes extends also to cells and structures which may be wholly, or only in part, affected and morbidly altered, and which lie beyond the line of immediate extirpation. Suppose that in any case you wish to extirpate a scirrhous growth, if you use the knife you only can remove so much of the morbid mass as is included within the line of your incisions. If you use a caustic, you can remove as much of the mass as can be done with the knife; but you have, in addition, the probability of the substance becoming absorbed and infiltrated into the tissues around, and poisoning or modifying the character of any cells there which may have a tendency to take on the cancerous type of development. That such absorption does occur is proved by the fatal result ensuing in some of the cases where arsenic has been employed as an ingredient in the escharotic, and in the distressingly painful effects of some less fatal agents. Such being the case, if we could only discover some agent which would first destroy the great mass of the disease, and then, becoming absorbed into the surrounding textures, would there destroy altogether those cells which have taken on a perverted type of development, or modify, in some degree, their vitality — then we might hope, by the use of such a caustic, not only to remove the disease more effectually at the time, but to afford more security against the chances of its return.

TO WHAT CANCERS ARE CAUSTICS APPLICABLE?

Caustics were at one time used by surgeons as applicable only to some special forms of cancer, as—(*a.*) Secondary cancer, where it occurred in the form of returning nodules after removal of the original growth. (*b.*) Cancers occurring in organs deeply seated and beyond the reach of the knife, as in the cervix uteri, etc. (*c.*) Cancerous growths attached to the surface of bones. Then (*d.*) flat superficial cancers specially belong to the category of those to which caustics were thought to be peculiarly applicable. But it was not till very lately that surgeons began to think of employing them in all cases of cancer, even in those where the tumour, say in the mamma, is still small and quite movable, for it was formerly deemed an indispensable indication for the employment of caustics of all sorts that the skin should first be broken, and the condition of open cancer be established.

THE PRINCIPLE UPON WHICH THEY ARE USED.

What principle do we follow, or what natural process do we attempt to imitate, in the employment of caustics for curing scirrhus?

The principle is not always very correctly stated or distinctly enunciated; and I should, therefore, like to make a few remarks regarding it. I hold in my hand the best monograph which we possess in English on the nature and treatment of cancer—that of Professor Walshe of London, who points out in one of his chapters different ways in which cancers may possibly terminate in cure when left to themselves. It is only to one of these modes of termination in cure to which I wish at present to direct your attention particularly—to that cure, namely, which is effected in the way of mortification. Under this head we find Dr. Walshe saying—"In some rare cases a spontaneous sphacelus of the morbid substance and of the surrounding parts has led to the total separation of cancerous growths, and been followed by the recovery of the patient. Garneri, Cruveilhier, Everard Home, Cline, Steideley, Dupuytren, Richerand, C. T. Jackson, and others, have observed this fortunate accident." Then he goes on to say, what is no doubt true, that "the separation of cancer in the manner now described is not, however, as a necessary sequence, followed by recovery. Cruveilhier alludes to a case in which healthy cicatrisation set in after the fall of the growth, yet indurated masses soon made their appearance in the cicatrix, and, though these were destroyed with the chloride of zinc, the disease spread to the axilla." I have seen it in like manner recur in the mamma after it had been removed and enucleated by spontaneous sphacelus. But the opposite and happier result has apparently been more frequently observed. Now, it always appears to me that the question we have to solve is, Can we not in all cases produce this rare and fortunate accident, as Dr. Walshe terms it, by artificial means, turn an accident of nature into a certainty of science, and by inducing mortification of the morbid mass, lead to its enucleation and separation! Dr. Walshe does not refer to this view of the matter further than to notice two cases in which an attempt had been made to imitate the natural process, and these cases he holds up rather as warnings than as examples to be followed. One of these cases is altogether so peculiar, and the procedure is one so unlikely to be repeated, that I shall take the liberty of reading it to you as given by Dr. Walshe in another part of his work. "The occasional fortunate issue of cases in which mortification had destroyed the morbid growth, led to the bold and hazardous proceeding of inducing artificial destruction of the kind by the inoculation of the matter of common or hospital gangrene. M. Rigal, Surgeon to the Hôtel Dieu at Gaillac, appears to have had recourse to this experiment, in one instance at least, with success of a very remarkable stamp. He made a small incision in the centre of a mamma (so much enlarged by an irregular, uneven, fixed varicose tumour, that it measured thirty-one inches in circumference), and covered the place with lint soaked in gangrenous sanies. On the third day the wound inflamed, and exhaled a putrid odour. Gangrene made such rapid progress, that in eighteen days the whole of the enormous mass had separated; four months and a half after, the wound had completely closed; eighteen years later the lady was still living, and had never had a relapse."

The experiment with hospital gangrene is certainly one which neither you nor I would like to see repeated. But then comes the question, May we not hope to attain the same object with as much certainty, but with less risk, by means of caustics introduced into the centre or below the base of the tumour? Formerly, as I have told you, caustics and escharotics were applied only to cancers with open surfaces, and then in such a manner as only to remove the mass layer by layer until the base was arrived at. But matters are now changed; and since attention has begun to be more especially directed to this department of surgery, various methods have been devised—and these may yet be greatly improved upon—of destroying the tumour from the centre, or of blowing it up at once (if I may so speak) from the base.

VARIETIES OF CAUSTICS.

As regards the substances employed, you will ever and anon find the allegation is being made that some new vegetable has been discovered, possessed of escharotic properties in a degree sufficiently high to enable it to be used for the destruction of cancerous growths. Such vegetable plants or preparations have never yet in reality been discovered, nor are they ever likely to be. But there are a number of powerful enough mineral caustics, which admit of division into the three groups.

First of all, we have the concentrated alkalies, as potassa, lime, and soda, which may be used either singly or combined. These form admirable applications to chronic inflammatory indurations and enlargements, as of the cervix uteri; but they do not answer so well in the case of cancers, for here their use is apt to be attended with bleeding, which quenches the caustic.

Secondly, we have the group of the concentrated acids, such as the nitric, hydrochloric, and even the fluoric acid, which I have found to act in some cases as a good escharotic. Sulphuric acid made up into a pasty mass with saffron and other substances has been much used by Rust and Velpeau, and with good effect. But in all instances these substances have only been applied superficially, in the hope that they would sink downwards and exert a deep escharotic effect, without being introduced and imbedded in the substance of the tumour.

Thirdly, metallic preparations have yielded the best results that have as yet been attained. Of these, arsenic in its various forms has always been much in vogue, and it matters little in which of its forms it be used. You will always be hearing from time to time of cures of cancer effected by non-professional people up and down the country by means of particular preparations; and on inquiry you will almost invariably find the active ingredient to be some form of arsenic. It certainly has a wonderful effect in searching and sinking into and destroying the carcinomatous mass; but there are two very serious objections to its universal application. There is, first, the intense pain which it excites, and which lasts for two or three days after its application; and, secondly, the danger to life which attends its use, for its destructive effect is not always confined to the morbid part, but it sometimes becomes absorbed into the system and causes death, with vomiting and all the other symptoms of arsenical poisoning. The paste or preparation into which it enters as the main ingredient does not usually contain more than from two to ten per cent of the arsenic; but even where it is present in a proportion no higher than four per cent, it may become absorbed through the open surface and produce its fatal effects. Landolphi made extensive use of chloride of bromine, which has the disadvantage of being extremely suffocating. Canquoin of Paris acquired a fortune and a reputation by his success in the cure of cancers by means of caustics, and the preparation which he chiefly used was chloride of zinc. This is a very deliquescent salt, and does not keep, except when made up into the form of a paste with starch or flour; it is, moreover, very apt to cause hemorrhage, at least when used pure. But, on the whole, it is an excellent escharotic. The pernitrate of mercury has been much used by some practitioners, chiefly as an application to lupus and corroding ulcers. Two years ago I showed that in a very simple salt—the sulphate of zinc—we have a very powerful caustic, when it has been dried and reduced to a powder. I applied it at first to superficial cancers, and in several cases with complete success.

Last year I had an opportunity of showing to the class a poor woman who for ten or twelve years had a large cancerous ulcer on the cheek, involving the facial nerve, and who had been quite cured by several applications of the dried powder. I saw quite lately a lady who at one time suffered from a superficial creeping cancer, which began on the neck, and spread in two years upwards to the cheek and temples. In that case, too, the dry sulphate of zinc was applied, and she is now quite well. To apply it to the base of a tumour or into its interior, it may be mixed with sulphuric acid, as first suggested by Dr. Thompson.

The greatest advance, however, which of late years has been made in the caustic treatment of carcinomatous growths, does not consist in the discovery of any new caustics, so much as it consists of more clear and practical views as to the mode or modes of employing them, and especially in the introduction of the destroying agent into the centre, or beneath the base of the tumour, so as to produce at once, or as speedily as possible, mortification of the entire mass. Various methods have been tried for effecting this object.

Two years ago a great deal of attention was attracted to the subject in consequence of the alleged success which attended the treatment of cancer by means of caustics in the practice of an American, Dr. Fell, who was allowed in London to try his plan of treatment on the cancer patients in the Middlesex Hospital. What he did was first to remove the skin over the tumour by means of nitric acid applied in lines to the surface, and afterwards to insert some paste compounded with chloride of zinc into the fissures. This was allowed to remain and exert its escharotic action for one, two, or three days; and then, after removing the slough with a knife, he introduced some more of the paste into the deepening and enlarging grooves. By repeating this process several times he deepened the fissures, till they reached to the base of the tumour, when the whole mass sloughed and separated. Chloride of zinc, however, is, as I have told you, apt to cause bleeding, and the procedure is attended with this further drawback, that it involves the use of a knife, and that, as we have seen, is always a source of dread to patients.

You will find an ordinary quill-pen to be an instrument as efficacious, and, to the patient at least, much less formidable than the knife. If you make use of the caustic made by saturating strong sulphuric acid with a quantity of sulphate of zinc, dried and powdered, you can manage by dipping the pen in this mixture, as if you were going to write with it, to lay it in a number of lines across the tumour, the number of lines corresponding to the size of the growth which you wish to destroy. Very speedily the sulphate of zinc kills the skin in the course of the lines which you have drawn, and if you will now scratch assiduously with the filled pen along these lines, you will cut through the skin in a few seconds. Leave for a day the fissures filled with the caustic paste, and then every day or two, by renewing the application of the scratching and caustic, you can cut down to a greater depth. In making the first application, I usually make a fissure of about a fourth or three-eighths of an inch in depth, and then destroy the tumour more deeply by successive applications. In this way five or six days may suffice for the removal of a good-sized tumour. Let me add, that in thus destroying and digging out, as it were, from its very base, a cancerous tumour of the mamma, or other external part—neither of the two caustics applied by the quill would suffice singly and individually. If you used the sulphuric acid alone, you will find that the acid so chars and hardens the spot to which it is applied, that you cannot next day cut or scratch deeper through it with the pen ; while the sulphate of zinc paste with the sulphuric acid keeps the parts soft and pliable. Again, if you used sulphate of zinc alone, you could not cut through the skin, or penetrate deeply with it. For that purpose the aid of the sulphuric acid is required, and the relatively slighter pain attendant upon this than upon most other caustics is perhaps explicable by the fact that sulphuric acid acts almost instantaneously in producing its destructive effects upon living tissues. Usually the healthy skin at the edge of the sloughing-out mass is granulating, contracting, and partially cicatrising before the dead tumour itself separates. Dress the exposed tissues or ulcer, before and after the tumour is enucleated, with black wash, chloride of zinc, sulphate of zinc, nitrate of silver, or any other appropriate surgical lotion.

M. Maisonneuve of Paris has of late recommended the employment of what he calls caustic "arrows;" a practice, however, not entirely new either in French or English surgery. These are little pieces of paste containing chloride of zinc made into the form of small cones, sharp at the point, to facilitate their entrance into the substance of the tumour. In applying them he sometimes makes punctured wounds into the tumour all round its base, and into each wound introduces an "arrow," in the manner shown in Fig. 37.

Again, instead of conical arrows introduced into the base of a tumour in a circular direction, he sometimes makes use of small flattened pieces of caustic paste introduced in great numbers from

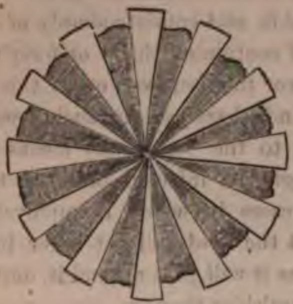


Fig. 37.

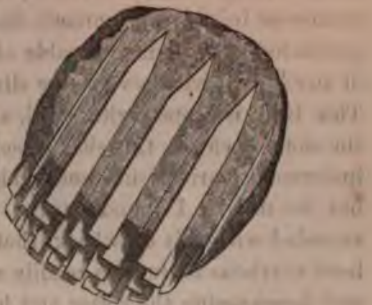


Fig. 38.

the surface of the tumour, and all parallel to each other (Fig. 38). In other cases he has the caustic introduced in the form of a larger ovoid mass right into the centre of the tumour at once (Fig. 39). Some of these arrows, which I here show you, were made according to his description, but I find them too soft to be easily introduced, and if a wound be previously made, they do not suffice to check the bleeding. I have caused some others to be made up with sulphate of zinc, which are harder; but hemorrhage is apt to accompany both kinds, which they are both utterly unable to arrest. I made the attempt in the end of last week to produce sloughing in a cancerous mamma by the insertion of chloride of zinc arrows into the centre of the tumour; but such a severe hemorrhage occurred that I was obliged to desist and to apply perchloride of iron to check the flow. Might not arrows made of chloride of zinc and perchloride of iron answer better?

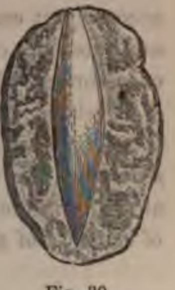


Fig. 39.

We may yet find a means of applying caustics to the interior or to the base of cancerous masses which shall be more effectual than

Fig. 37. Diagram illustrative of the introduction of conical arrows into the base of a tumour for its circular or radiated cauterisation or destruction.—(Maisonneuve.)

Fig. 38 shows the mode in which flat arrows are introduced for parallel or fascicular cauterisation or destruction of cancerous tumours.—(Maisonneuve.)

Fig. 39 shows a fusiform arrow, such as is used for the central cauterisation or destruction of cancerous tumours.—(Maisonneuve.)

any of those to which I have referred. I attempted in some cases to inject a saturated solution of sulphate of zinc into the heart of a scirrhous mamma by means of a small syringe, such as I hold in my hand. It is that contrived by Dr. Alexander Wood, for the subcutaneous injection of narcotic fluids, and consists simply of a small graduated glass syringe capable of containing thirty or forty minims of any liquid, with a very fine silver tube screwed on to the nozzle. This tube is tipped with steel, and sharpened in such a way that the canal opens at the side close to the point. By means of this instrument, various substances might be injected into the tissues; but its use, as I found in the cases in which I employed it, is attended with this drawback, that the fluid will not enter into the hard scirrhous texture so readily as it will pass around it, destroying and decomposing the softer and healthier tissues.

Perhaps this objection could be got over by using a somewhat similar instrument, provided with a wider and stronger tube, like that of a paracentesis trocar, which could be made itself to penetrate into the centre of any scirrhous or cancerous mass: and the escharotic with which it is filled should be left in the track of the trocar as it is withdrawn, instead of being injected through it. If necessary, it could be passed in many directions through the centre and substance of a tumour, without requiring to be passed more than once through the skin.

Perhaps you will excuse me adding that I have now several times seen small fatty tumours of the body, talpæ or wens of the scalp, etc., die in the centre, and their contents become eliminated, after they were injected, in small quantity, with saturated solutions of sulphate of zinc, perchloride of iron, etc.

Applications of Caustics to the Cancerous Cervix Uteri.

I have, in the preceding observations, dwelt at such unexpected length upon the application of caustics to the cancerous mamma, as to have forgotten to speak of their application to the cancerous cervix uteri. The principles of their utility and application are indeed the same in both organs; but at the same time there are one or two important points of difference. First, the epithelial form of cancer is infinitely more common in the cervix uteri than in the mamma, and all pathologists know that the excision by the knife, or the destruction by caustics, of epithelial cancer, is more likely to be successful than the excision or destruction of common cancer. But while we are thus entitled to hope for better success in the surgical treatment of a tractable case of uterine mammary cancer, the application of caustics to the cervix uteri is attended with more danger than to the mamma, as the peritoneum is in such close propinquity as to be readily reached and fatally injured.

I have seen potassa fusa frequently applied to cases of cancer uteri which appeared limited, but still beyond the reach of excision. In most cases it failed to do any good; perhaps indeed in most it did harm, as it is almost impossible to apply it in cancerous disease so as to produce any great slough; for bleeding almost invariably supervenes and arrests its action. In one case which I saw with Dr. Moir, it was often applied by him, with the result at last of bringing out a large and apparently complete slough; and the patient has since that period—now ten or twelve years ago—remained quite well.

The most manageable of all strong caustics, as applied to this part of the body, is dried sulphate of zinc. You may apply it either through the speculum in the form of the simple powder, laid on in thick quantity upon the part which you wish to destroy, or you may apply it without the speculum at all, in the form of two or more medicated pessaries, made with as much of the sulphate as the ointment can be made to take up. In this latter case, you apply the medicated pessary with the fingers to the cavity of the existing ulcer, and fill the cavity carefully with two or more pessaries. It is always further well to introduce into the vagina below two or three pessaries, made with carbonâte of sodá, to neutralise the zinc if it happen to run down. I have been much pleased with the results of this treatment in a few cases; but the practice is too recent to be able to obtain sufficiently accurate results. In one of the first cases in which it was used—the notes of which were drawn up carefully by my assistant, Dr. Skinner, who took a deep interest in its management—the patient was a woman of thirty-eight years of age, who came from the Highlands to consult me in the beginning of September 1856, in regard to a constant and sometimes profuse menorrhagia which had set in three months before, and had been going on almost uninterruptedly until the time when I saw her. She had been married for five years, and had given birth to three children, the youngest of whom was then about twelve months old. On making a vaginal examination, I found the cervix uteri enlarged and indurated, and though still somewhat mobile, it was the seat of an extensive ulcer, with ragged, indurated, irregular margins, soft and boggy in the centre, secreting a quantity of sanious fetid fluid, and bleeding freely when touched. Her general health had begun to give way, and her face was already marked by the cadaverous look and the sallow hue which are supposed to be peculiar to those who are the subjects of the cancerous cachexia. Dried sulphate of zinc, in the form of a fine powder, was freely applied to the ulcerated surface; and as one application did not seem to be sufficient for the removal of the morbid mass, it was repeated on the third day by my assistant. When I examined the patient a few days after the first application of the escharotic, I could hardly believe at first that it was the same case—so great was the change that had taken place. The induration was all gone, the bleeding and offensive discharge were stopped, and a puckered defined slough, which presented an exact model of the ulcer, was beginning to separate. On the ninth day the slough was completely detached, and a simple cicatrising sore was left. As for further treatment, she was ordered to take fifteen drops of the tincture of the muriate of iron three times a-day, and occasionally alterative and aperient powders of rhubarb and soda. The healing surface was touched occasionally with some tincture of the muriate of iron, and the patient was ordered to use injections containing aluminated iron to remove a flabby patulous condition of the os uteri.

The patient was only five weeks under treatment altogether, and at the end of that time she returned home, with the local disease completely destroyed, and her general health in a great degree restored. Ten weeks afterwards I heard that she had remained perfectly well; and only yesterday morning I had a letter from Dr. Irvine of Pitlochrie, telling me that she had lately been confined of a healthy mature child, after a labour which was somewhat tedious in the first stage, from the undilatability of the os, but otherwise quite normal and natural. She is now, he further states, "in perfect health. The os uteri is somewhat uneven, but there is neither hardness, ulceration, nor discharge. Indeed, the woman has never experienced any discomfort since she passed from under your charge."

In reference to the use of caustics for cancerous diseases of the cervix uteri, I have only this further remark to make—namely, that we have at least one very interesting case recorded to show that the simple muriate of iron may prove to be a most useful agent in the destruction of carcinomatous growths. I allude to a case occurring in the practice of my friend, Dr. Boulton of Horncastle, who had a patient with epithelial cancer of the cervix uteri, which had attained a considerable size, which frequently was the source of profuse hemorrhage, and which was quite friable, and broke down under examination with the finger. He applied some tincture of the muriate of iron to the broken-down tissues, and this seemed to act by coagulating the blood in the small blood-vessels of the part, and so destroying its nutrition that it mortified and sloughed away. Perhaps a saturated solution of the perchloride would act still more effectually. The disease returned, and was again treated in the same way, and with the same result; and after it had in this way several times recurred and been destroyed, it was finally cured, and the patient has now remained well for several years. The observation is an extremely interesting one, for it may be, that while arsenic would destroy the cancerous parts, and then pass deeper and exert its poisonous action on the whole body, iron or some other metal may have merely the more local effect of poisoning the morbidly-disposed cells in and near the diseased part. And in reference to this matter, you must remember that iron in its various forms is also one of the best of all tonics that you can prescribe for a cancer-affected patient. There is evidently in such cases a diminution of the quantity of iron in the blood, as is shown also by chemical analysis; they are usually chlorotic; and so convinced was Mr. Carmichael of Dublin of the beneficial effects of iron in the treatment of cancer, that he proposed to keep patients saturated with it as the best means of checking the progress of the disease. It certainly is one of the best tonics we possess for such cases; and a few instances like that narrated by Dr. Boulton would show it also to be a very admirable escharotic, and might lead to its more general application for the local destruction of the carcinomatous growth.

[In some cases of carcinoma uteri, where there was no hope of eradicating the disease, and no possibility of excising the affected part, I have seen Sir James scoop out with his finger-nail, or a curette, as much as possible of the diseased mass. This proceeding had the effect of checking for a time the local progress of the malady, and of allowing the patient's general health to rally from the exhaustion produced by the excessive discharges from the cancerous surface.—A. R. S.]

LECTURE XII.

ON COCCYGODYNIA, AND THE DISEASES AND DEFORMITIES OF THE COCCYX.

In the first bed at the right-hand corner as you enter the ward for female diseases there lay a patient, whose history is interesting and instructive in more than one respect. I call your attention to her case now, inasmuch as she afforded a well-marked instance of a disease of which you will find, I believe, no description in any book, and on account of which I deemed it necessary to subject her to an operation, such as has not before, so far as I am aware, been performed, at least under similar circumstances. I shall, first of all, briefly relate to you the history of the case; then take occasion from it to make some observations on the nature and symptoms of the disease from which the patient suffered; and, lastly, try to point out to you how it may be most successfully treated.

E. F., a married female, of 40 years of age, never had any children, but menstruated regularly and painlessly, and enjoyed good general health until about two years ago. At that time her menstrual discharges began to be more profuse and frequent than usual, and to be attended at times with pain. This she for a long time disregarded, believing the phenomena to be due to the "change of life;" but as she was becoming gradually weakened by the excessive losses of blood, she applied at my house for advice, about six or eight months ago, just after recovering from a severe attack of menorrhagia of three weeks' duration. In addition to the bloody discharges, and at the intervals between them, she suffered from a constant fetid leucorrhœa; and she also complained of occasional shooting pains in the back and lower parts of the abdomen. She was much emaciated, and had a very cachectic appearance; and my nephew, Dr. Alexander Simpson, who then saw her, found the cervix uteri to be very much enlarged, indurated, and ulcerated; and it felt rough and irregular, like a commencing cauliflower excrescence, and bled freely when rudely touched. The ulceration and induration were not distinctly limited to the cervix, however, so that no hope could be entertained of curing the disease by amputation of the cervix uteri. But the dried sulphate of zinc was applied on several occasions, with the happy result of causing nearly the whole of the indurated and infiltrated mass to slough away, and there is now left a firm and healthy cicatrix. The patient does not now suffer from any unusual loss of blood, although she menstruates freely and regularly; and, so far as regards the uterus, she may be considered perfectly well, if we except a small hard knot in the anterior lip of the cervix, which may still, perhaps, be regarded as suspicious. But as she recovered from her uterine disease, and as the symptoms attendant on it began to disappear, she commenced to complain, after sitting on the damp grass in her avocation as a washerwoman, of a dull, aching pain seated in the very lower extremity of the spinal column, for which my nephew contented himself with prescribing, in the first instance, a belladonna plaster, and afterwards various local anodynes and general tonics for a space of two or three weeks. As this pain, however, instead of abating, seemed always to become more constant and harassing, and as the patient could not sit down except on one hip at a time, and even then with the greatest suffering, an examination was made of the painful part, when it was found that the coccyx was unusually straight and long, so that it reached far backwards and downwards, while the very tip of it was felt through the rectum to be projected suddenly forwards. *Pressure of the coccyx and movement of it in any direction caused pain.* To subdue this sensibility thirty drops of a watery solution of the bimeconate of morphia were twice injected into the soft parts around the bone, on two different occasions, and with an interval of several days between each injection. This measure had the effect each time of deadening the pain, but it led to no permanent result. The next step employed for her relief was the separation of the coccyx from all the surrounding muscles, tendons, and ligaments, which was done subcutaneously, with a tenotomy knife. Three or four weeks afterwards the patient returned, saying that for a time she had felt better, but that during the last week she had suffered as much pain as ever, and was incapacitated for work from it. She was, in consequence, sent into the hospital; and on Saturday, June 3, I removed the two lower segments of the coccyx by cutting down upon them through the skin, and dividing the bone with a pair of bone-pliers; and then the separated portion being pushed through the wound by the finger of an assistant passed into the rectum, it was easily detached from the soft parts, and so removed. The edges of the wound were brought together with two iron-wire stitches, which were removed some days afterwards, and the wound is now almost closed up.

Amputation of the coccygeal bones has been had recourse to in this patient, as it seemed to afford her the best chance of relief from a peculiar form of disease, which is anything but rare, although no written account of it has, so far as I know, as yet appeared. If you will take the trouble to make inquiry of observing men in extensive practice, or if you have the opportunity of making the observation for yourselves, you will find that cases are ever and anon occurring, where the patient complains of pain in the region of the coccyx, very constant, and aggravated by certain movements of the trunk, and usually attributed by the patient to some kind of direct injury, or to exposure to cold. The most common cause of the disease, so far as I have been able to discover it from inquiries addressed to the patients themselves, is injury of the coccyx, inflicted either by falling backwards upon it, or, more frequently still, brought on by sitting down suddenly and forcibly on the corner of a chair or other angled body. Often enough, however, it is impossible to trace it to any traumatic origin; and the patient can only tell you, as in the case of our patient in the hospital, that she had been sitting on damp grass, or had been otherwise exposed to cold, before she began to experience the pain; or she may be altogether unable to adduce any assignable cause. I say she, because all the patients whom I have yet seen affected with this disease have been of the female sex; although I presume it is not entirely confined to them, and it is even not very clear why they should be more subject to it than the members of the other sex. I have said that when you have been made aware of the possibility of the occurrence of this complaint, and when you begin to look out for it, it is by no means very rare. Diseases, like other objects in nature, sometimes seem rare, not because they are so in reality, but merely because our attention has not happened to be fully called to the recognition of them as they pass before our eyes. I think you will hold me justified in making this remark, when I tell you that within the last three weeks I can count up at least ten cases of this particular malady which I have seen in private or consultation practice. Of course it is a very unusual circumstance to meet with so many during such a short period; but it is not more wonderful than what often enough occurs in the experience of all surgeons in extensive practice, who find that during a short space of time they may have a succession of cases all presenting the same form of injury—as an epidemic, as it were, of fractures or dislocations—and that a long period may elapse before they again meet with a similar case. Such a rapid succession of cases of the kind I allude to is, I repeat, of course an exceptional occurrence. But I know of old, and on looking back upon many past years of practice, that I have seen and recognised a great many cases of this disease; and I have probably seen many others also, the true nature of which I did not at the time understand. It is, therefore, I believe, by no means an uncommon disease; and if you can discover and succeed in curing it, you will often get much credit to yourselves. That you may be enabled to do so, let me tell you how you are to detect it, or point out to you

THE SYMPTOMS OF THE DISEASE.

The leading symptom of the disease is pain in the region of the coccyx, experienced by the patient whenever she sits down and rises, and sometimes while she remains in a sitting posture. Most of the patients affected with it are obliged to sit on one hip, or with only one side resting on the edge of a chair, or with the weight partially supported by a hand on the chair; and they are rendered sometimes very awkward and miserable in consequence. Some of them actually dread sitting down—so great is the pain then felt; and not only so, but, as I have hinted already, the pain is in many cases aggravated or renewed whenever it becomes necessary again to resume the erect posture. There are other movements of the coccyx besides, which are liable to be attended in such cases with pain. Thus, some patients have pain with every step they take in walking, while in others the movements of progression excite no uneasiness whatever. Others, again, feel the pain most when the bowels are being evacuated, or under any circumstances in which the sphincter or levator ani, or the ischio-coccygeal muscles, are called into action. The pain is not in every case very acute or intolerable; and you will sometimes meet with patients who have borne with it for many years, sometimes without having sought any relief at all, sometimes in despair from the inefficacy of the remedies that have been employed. I have under my care just now a patient suffering from menorrhagia, who tells me she has been annoyed more or less for about twenty years with a pain of this description in the coccyx, not very severe, but which she has never found any means of alleviating, though formerly she consulted various physicians and surgeons on the subject. Again, the pain is not at all times equally severe in the same patient. When in Cumberland lately, I saw a lady who had kept her bed the whole winter, because of the excruciating pain which she experienced in attempting to sit upright or walk about; but who, at the time when I saw her, had got so far relieved as to be able to move about a little. The distinguishing feature of the disease in every case is that the pain is felt at the lowest part of the spine, or rather in the site of the coccyx, to which it is always specially referred by the patient, and where pressure always aggravates it. Pressure and movement of the coccyx, too, with the finger in various directions, produce pain, and the kind of movement which is thus attended with suffering differs in different cases.

NOMENCLATURE OF THE DISEASE.

If it be desirable, as I think it is, to give the disease which I have described a distinct designation, I think that by availing ourselves of the Greek (ὀδύνη, pain), which enters into the composition of several names already sufficiently familiar to our ear, we can construct a name for this disease that will serve for its admission into a nosological list. We are constantly in the habit of speaking of pain in the side as pleurodynia, and the designations gastrodynia and mastodynia are in common use for pains in the stomach and pains in the mammæ; and following this analogy, it seems to me that we might very conveniently refer to this painful affection of the coccyx under the analogous name of *coccygodynia*. Besides that it is sufficiently terse to be easy of use, the designation presents this great advantage, that it involves no pathological theory as to the nature of the affection, but simply expresses its most striking symptom. But what theory can we form as to its proximate cause? or what, in other words, is

THE PATHOLOGICAL NATURE OF THE DISEASE?

I believe that the pain which is the characteristic of coccygodynia is excited during the action of particular muscles, or particular sets of muscles, and that when the coccyx or rather the coccygeal joints have been in any way injured, or when it or its surrounding fibrous tissues have become the seat of inflammation, or other morbid change leading to super-sensitiveness of the part, any action of the muscles in connection with it which causes motion of the coccygeal bones, will, at the same time, give rise to a feeling of pain. Now, in order to understand aright the circumstances under which pain is likely to be produced by the action of muscles on an inflamed or otherwise diseased coccyx, I must beg of you to recall to mind your knowledge of its normal anatomy; and to revive your recollections on this subject, I show you here a sketch of the coccyx in its muscular and tendinous relations, which has been obligingly drawn for me by our able demonstrator, Dr. Cleland, from a dissec-

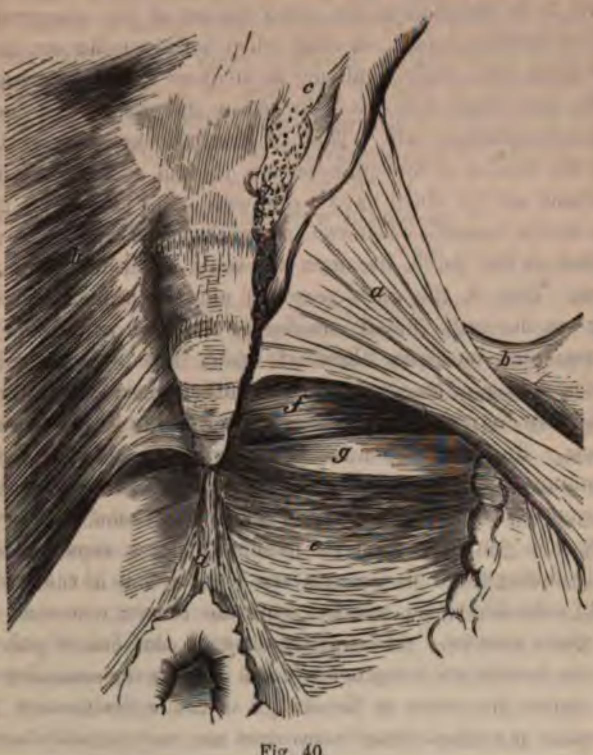


Fig. 40.

Fig. 40. Sketch of the anatomical relations of the coccyx. *a.* Great sacro-sciatic ligament. *b.* Small sacro-sciatic ligament. *c.* Surface from which the gluteus maximus muscle (*h*) has been detached. *d.* Sphincter ani. *e.* Levator ani. *f.* Coccygeus muscle. *g.* Fascia in contact with the rectum. *h.* Gluteus maximus of left side.

tion made for the purpose by my former class-assistant, Dr. Peter Young. (See Fig. 40.) This will serve to remind you that the coccyx gives attachment along either side to portions of the greater (*a*) and lesser (*b*) sacro-sciatic ligaments; and that as regards muscles it has inserted into it—1. the internal extremity of the fibres of the ischio-coccygei (*f*), which arise at their outer extremity from the inner surface of the tuberosities of the ischia, and pass directly inwards to be attached to the outer border of the coccygeal bones along its anterior aspect; so that, when both muscles are in action at the same time, their tendency is to draw the coccyx somewhat forward, and when only one is in action the coccyx will be drawn to the corresponding side. Then, 2. from the extremity of the bone spring the tendon of the sphincter ani (*d*), and some of the fibres of the levator ani (*e*), which have a powerful effect in pulling the end of the coccyx inwards whenever any straining action of the muscles that close in the pelvis becomes necessary, as in defecation, coughing, etc. But, 3. the most powerful muscles connected with the coccyx are the large gluteal muscles (*h*) of either side, some of the tendinous and muscular fibres of which rise directly from the posterior surface of the bone (*c*), while others may come to act upon it indirectly by means of their origin from the great sacro-sciatic ligament. In sitting down and in rising up the glutei of both sides are simultaneously in action, and during progression when the body is swayed from side to side they act in succession. Now I have already told you that in some patients pain is experienced most severely during these movements, and I think that in them the pain is fairly referable to the traction upon the coccyx exercised by the great glutei muscles. Other patients, again, complain of pain chiefly when the bowels are being moved, and in them the sensation is probably due to the action on the coccyx of the sphincter and levator ani; while in a third class of cases pain may very possibly be excited during the contraction of the coccygeal muscles, as in the act of sitting down. It is by no means very easy to understand why the action of particular muscles should thus be attended with the production of pain in particular instances. It may be that the disease is confined to the tendons of the muscles; or to the portion of the coccyx from which they spring; or, possibly, certain muscles during their action may bring the bone into contact with a super-sensitive nerve or inflamed structure, and in this way give rise to the painful sensation. Again, the fact of the disease being more common in women than in men, or being confined indeed almost exclusively to the former, may be due to the greater development of the gluteal muscles, which results from the larger size of the female pelvis. It is not necessarily due to lesions sustained during parturition, although sometimes so produced; for it occurs as frequently in the young and unmarried as in those who have passed through one or more confinements; and more probably it is dependent in some way on the peculiar form and large size of the female pelvis, and on the greater development of the gluteal and perineal muscles which results therefrom. But, however that may be, we have most convincing proof that the pain is elicited by the action of the muscles, in the fact that separation of the fibres of these muscles from the coccyx often affords the most effectual and instantaneous relief. And this leads me to speak next of

THE TREATMENT OF THE DISEASE.

Formerly, before I knew much of the nature of the complaint, I used to have recourse to many different remedies, and many different modes of treatment, in order to procure for my patients relief from their pain. Opium in its various forms, belladonna, hyoscyamus, and a variety of other sedatives, were all administered internally, or applied locally; but only in general with the most temporary benefit. Suspecting that the pains might have somewhat of a rheumatic character, I in some instances caused the patient to make use for a length of time of the remedies which are usually most efficacious in the treatment of diseases dependent on the rheumatic diathesis; and in other cases I have administered the various preparations of iron, zinc, arsenic, and other antineuralgic tonics, for a lengthened period; but generally none of these modes of treatment seemed to afford any real relief, and by none of them have I ever succeeded in effecting a permanent cure, except in a very limited class of cases. There are some cases where the pain seems to be due to acute inflammation, probably of the sacro-coccygeal articulation, or of some of the joints between the several segments of the coccyx itself; and in such cases I have seen great benefit result from the application of leeches over the part, followed by counter-irritation, while the patient was kept at perfect rest, and subjected to other antiphlogistic treatment. I have sometimes tried the use of acupuncture-needles; and not unfrequently I have had recourse to the subcutaneous injection of a solution of morphia into the tissues around the coccyx; and this plan of treatment, which is usually so successful in the treatment of local neuralgias, has comparatively seldom had the effect in this disease of relieving the pain, and never, so far as I can remember, of producing a perfect and permanent cure. All kinds of constitutional treatment, and most forms of topical applications, are often, however, almost or altogether of no avail for the cure of this disease; and the only means of obtaining radical relief—and happily it is a means which proves successful in almost every case—is the complete separation from the coccyx of the muscular and tendinous fibres that are in connection with it. To effect this, you must introduce a tenotomy-knife underneath the skin, at a short distance from the tip of the coccyx, pass it along the posterior aspect of the bone, and then divide the muscular and tendinous attachments, first on one side, and then on the other, and finally all round the tip of it. It is not in every case necessary to make such a free division as I have indicated. In some instances division of the fibres of the gluteus maximus of one or the other side will suffice, or detachment from the coccyx of the sphincter and levator ani may be all that is requisite for a cure. This simple operation is easy and rapid of performance, like other examples of subcutaneous surgery is not attended with bleeding, and is attended with no great degree of suffering; and the result is in almost every case instant relief of the pain, and in most cases a perfect and permanent cure of the disease. In illustration of these remarks, perhaps you will allow me to read you the history of a case of this disease which was cured in the manner I have described to you. The patient was a lady from India, who came under my care several years ago; and the history of her case, which I am now about to read to you, was drawn up for me by the lady herself.

"On the 5th November 1852, while taking my usual morning ride on my favourite horse, about fifteen hands in height, he suddenly shied. I was thrown, and so severely shaken and injured that I fainted on the spot, and could not suffer to be touched or moved for a considerable time thereafter. On being taken home I fainted again, from the excessive pain in the lower extremity of my body, which baffled all and every remedy to alleviate or remove; and for six weeks I could neither turn nor attempt to move from my couch. At length I began to get about again, suffering great inconvenience from my accident both in a sitting and reclining posture—the latter especially, which in travelling caused me intense and excruciating torture. Indeed, after travelling some hours in a carriage, I quite dreaded getting up to step out of it, as I could not do so without severe spasms. I returned to England early in 1853, and hoped its bracing climate would speedily rectify all that was amiss with my back; but in this sanguine expectation I was disappointed, and still doomed to drag on a miserable and wretched existence up to the 4th March 1855, when, as if by magic, I obtained immediate relief from a slight operation performed upon me by Dr. Simpson."

The treatment in this case consisted, I say, of the isolation of the coccygeal bones from the surrounding tissue by means of a tenotomy-knife; and the result of this simple operation has proved as satisfactory and permanent as the relief obtained by it was instantaneous and complete. In the case of another lady from India, who had long suffered from coccygodynia, while I was performing the same simple operation to effect her relief, an accident occurred. I was dividing the last fibres of the coccygeal attachments, when the slender knife gave way, and broke among the dense structures. I told the patient of it, and she at once raised herself up in alarm to hear of the calamity; but before I had done telling her of what had happened, she had had time in sitting up to discover that she had been cured of her disease; and, rejoiced at the discovery, she quickly replied, "Oh! never mind; my pain is gone—let the knife remain." And there, for aught I know, it remains to this day—an illustration of a pathological law to which I have already directed your attention in the course of these lectures—viz. that pieces of iron and other metals may remain in contact with the living tissues, and may lie imbedded in their midst for any length of time, without giving rise to any marked degree of inflammatory action. And the striking effects of this simple operation for the cure of coccygodynia are not confined to those cases where it is had recourse to at a comparatively early period of the disease. I have under my care just now a patient who has been a martyr to it for twelve years past, and who, night and day, used to suffer great pain whenever she made any movement of the body. Yet, in her case, isolation of the coccyx, in the manner I have described to you, produced immediate relief, and ever since the operation was performed, a fortnight ago, she has been perfectly free from pain.

I have met with one or two cases of coccygodynia, however, which I have failed to cure by means of this operation; and where division of the muscular and tendinous fibres—even the most complete—and thus setting the coccyx perfectly free and perfectly at rest for a time, has merely eased the pain temporarily without relieving the patient of it altogether. In our patient in the hospital the operation proved thus unsuccessful, and therefore I put in practice what I had often thought of having recourse to, the more radical measure of removing altogether the coccyx or a portion of the bone. This amputation of some of the segments of the coccyx was resolved on the more readily in her case, because in her the several bones of it seemed firmly anchylosed, and it at the same time projected unusually low down, and was turned suddenly inwards at the tip. Making an incision of about two inches in length through the skin stretched tightly over the end of the bone, I exposed the latter, and having separated it from its connection with the soft parts, and divided it between the second and third of its vertebræ with a pair of bone-pliers, its two lower segments were easily removed. I have another patient suffering from this disease, in whom I have repeatedly had recourse to the isolation of the coccyx by means of the tenotomy-knife, but always with the effect of producing only a temporary relief; and in her case I have long proposed to perform an operation similar to that performed on the patient in the ward. If the results prove as favourable as we desire, and as there seems at present every reasonable prospect of attaining. Removal of portions of the coccyx is an operation that has been performed more than once before, in cases of necrosis in some of its segments; but I believe its performance under the circumstances I have been describing to you is altogether novel.

I have said that, as a general rule, the result of constitutional treatment of any kind affords us little hope of being able to cure this disease by its adoption. But, as I have already hinted, there is a class of cases, of which I have seen a few rare instances, where the pain seems to partake somewhat of a neuralgic character, and where I think I have seen the patient benefited by the use of the remedies which are usually employed for the cure of neuralgic affections. At all events, wherever you find a patient complaining of pain in the coccyx, who at the same time is affected with pains in the other parts of the body, and who has the unhealthy chlorotic aspect common to those subject to neuralgia, you would do well in such a case to put your patient through a course of iron, arsenic, zinc, manganese, or other nervine tonics, or to make her use some of them in combination for a time. By this means you may possibly succeed in curing the coccygodynia and in dispelling her other symptoms; and should that plan of treatment fail in effecting a cure, it will still form a very good and safe measure preliminary to the adoption of the severer but more certain operative procedure. I would only add, in connection with this point, that there is a leash of nerves lying all round the coccyx; and I once imagined that the relief obtained by isolation of the bone was due to section of these nervous cords; but now the explanation of the phenomenon which I have already given you seems to me to be the more probable, and that when the coccyx is separated from the surrounding tissues, no more pain is experienced, because the bone is by this means freed from the action of the muscles formerly in connection with it, and is thus placed in a condition of absolute rest.

As I am speaking of the coccyx, you will allow me to add, that if more attention were directed to the pathological and anatomical history of this organ than has hitherto been accorded to it, it would probably be found to be subject to diseases and disorders such as have hardly been even suspected. In the wide field of anatomical and pathological investigation, gentlemen, there is still much room for original observation and research; and the corner of it, to which I am now trying to turn your attention, has hitherto remained entirely unexplored. We have no thesis or monograph of any kind on the subject of the coccyx in its pathological relations; yet the organ is subject to various morbid conditions which are well worthy of careful examination. I have been telling you something about one of these morbid states, to which I have ventured to give a name and a place in pathology; and now, to interest you still more in the matter, and to show you in what direction inquiry might be most profitably directed, let me briefly indicate to you some of the other lesions to which the coccyx is liable. And first, a word or two as to the

INJURIES OF THE COCCYX IN CONNECTION WITH PARTURITION.

The coccyx is, as you know, articulated to the lower end of the sacrum by a joint resembling those which unite together the several vertebræ higher up in the spinal column; and this sacro-coccygeal articulation is sometimes found to be inflamed, as a result of injury sustained during the parturient process. While labour is going on, as the head of the child descends along the floor of the pelvis, the coccyx can often be felt to be stretched very much backwards, and under the strain to which they are subjected some of the fibres of the anterior ligaments which bind this bone to the sacrum may be torn and give way, and in the joint thus exposed and injured inflammation is very apt to be set up.

and then the evil effects of it may pass unnoticed till the
comes again to be in labour, when it will be found that the
ing bone presents a great obstruction to the progress of th
head. A good many cases have been put on record where
averred that fracture of the coccyx had occurred during labo
where, probably, the accident was of this nature, that the
and coccyx had become anchylosed together as a result o
foregoing inflammation in the joint; and under the pres
which the coccyx was subjected during parturition the m
adherent bones became again disunited. If the coccyx be
very much inwards towards the cavity of the pelvis at th
when it becomes united to the lower end of the sacrum, the
tion which it then offers to labour will be much greater tha
it remains in its normal position after anchylosis had take
and it may then be found necessary to have recourse t
operative measure to promote the progress and to admit
termination of the labour. What operation should be pe
in such a case? Some say that it then becomes necessary to
the child, and to effect delivery of the mother by means of
tomy; but if you will observe the course pursued by
when allowed to terminate such a case unaided, you wi
that she has a much simpler plan, which you can easily
and by following which you may succeed in bringing the
to a successful termination, without having recourse to the
operation of craniotomy. What nature does in such case
once an opportunity of observing in a patient who was
in the old Lying-in Hospital here. In a former labo
patient had suffered some injury of the coccyx, which ende
becoming anchylosed to the sacrum at such an angle as t
it to project inwards towards the cavity of the

adherent bones were separated from each other, and the child was speedily expelled. And in every case of this kind I think it would be better to break up artificially the morbid union that exists between the sacrum and the coccyx, than to have recourse to the deadly alternative of the destruction of the infant.

SURGICAL INJURIES OF THE COCCYX,

by which I mean fractures and dislocations of the bone occurring accidentally and independently of the parturient process, are not of very frequent occurrence in ordinary every-day practice, although a good many cases have been put on record. They were mostly produced by the patient having fallen backwards; and the striking features peculiar to every case are—1. The intense pain suffered by the patient when the coccyx was moved, as in the act of defecation, coughing, or walking; and 2. The instantaneous and complete relief afforded by the reduction of the displaced bone. I should like to cite to you two of the cases of this kind that have been published—one, because you have all the more common symptoms of the injury very concisely and touchingly recorded; the other because of the peculiar manner in which reduction of the dislocation was effected.

Smetius, a professor of medicine in the University of Heidelberg in the end of the sixteenth and beginning of the seventeenth century, has left a kind of diary on record of some of the most interesting cases that fell under his observation during the space of forty-eight years, and among other entries there occurs the following delectable entry:—"1588, October 27th.—My wife has fallen backwards, and so injured the coccygeal bone, that she cannot sit without great pain, nor can she empty the bowel or the bladder, or cough, without much distress."

In the *Ephemerides Medico-Physicæ* one Gustavus Casimirus Gahrliep tells of an accident that befell his father-in-law, an old septuagenarian, who, in descending the steps of a palace when they were slippery with ice and snow, lost his footing, and fell with the lower end of the trunk against the stone stairs. He sustained a fracture of the os coccygis in consequence, but said nothing about it to his daughter, a young girl, who was the only person living with him at the time. He could get no passage in his bowels; and his daughter, believing this to be the cause of the distress which she saw him labouring under, administered some aperients, but without affording any relief. He had become seriously ill on the fifth day, when he spoke of his accident to a sagacious friend, who told him that perhaps his spine was injured, and advised him to allow himself to be rolled and tumbled and pushed about, as he lay on a wooden couch, by two robust women. He followed his friend's advice, and with the happiest result; for by the jostling the end of the os coccygis which was bent inwards was restored to its situation, and the obstruction being removed the bowels were moved cum *impetu summo.*

Allow me to quote a third case, which will show you in what a simple manner this accident may sometimes be occasioned. Tobias Meek'ren, an old surgeon of Amsterdam, gave to the world, in his *Medico-Chirurgical Observations*, among other cases, one in which this accident—dislocation of the caudal bones—took place. The patient, he tells us, was a female, addicted to the sect of the Anabaptists, who went to the watercloset, and not knowing that the lid was down, suddenly injured her coccyx, so that she could neither sit nor stand, and was obliged to be carried to bed. On the second day the pain became greater, and she fevered and got convulsions; and then Meek'ren was called in, in consultation with her ordinary attendant. They suspected the nature of the case, but the modest lady would not allow herself to be touched. But during the night her sufferings became so intolerable that her medical advisers had to be summoned again early in the morning; and this time they were allowed to reduce the dislocation, which afforded her instantaneous and complete relief.

But besides being liable to be turned forwards, whether as a result of inflammation or injury during the process of parturition, or as the effect of direct violence from a fall or blow, the coccyx is found in some cases to project unusually far backwards. I do not refer now to those cases of which there are some few on record, and in which this dislocation of the coccyx backwards has been produced during labour, and has remained afterwards as a permanent but usually painless condition; the variety I allude to belongs rather to the class of

MALFORMATIONS OF THE COCCYX.

In the woman in the hospital the coccyx was unusually straight, and the general inclination of the bone was somewhat backwards, although the last segment of it was turned rather abruptly forward and projected towards the rectum. In her case it is not easy to determine whether this condition of the bone was present from birth, or was the result of some injury in after-life. But in a late number of the *Dublin Medical Press*, Dr. Wilson gives an account of a patient with a projection resembling a tail, attached to the lower end of the spinal column; and in the last number of the same journal there is a paper by Dr. Jacob, reprinted from the Dublin Hospital Reports, in which he describes a tumour of this kind that had been amputated by his father, and in which he speaks of a family, several of whose members presented this remarkable variety of malformation. In the *Chronicles of Lanercost* it is related that the Norman sailors used to believe the Englishmen to be furnished with tails, and when they had to execute them they hung them always with a dog alongside, thus anticipating the principle of *similia similibus.*

DEFICIENT DEVELOPMENT OF THE COCCYX

has sometimes been seen as a rare instance of deformity. The number of segments is liable to much deviation; but its total want, or its existence in a merely rudimental condition, is rare. Perhaps the most frequent and striking instances of this kind of deformity occur in the domain of comparative anatomy. Thus in the Isle of Man there is a breed of cats, all the members of which are born without tails, the coccygeal bones being reduced in number to a very few, and these rudimentary in character. Absence of the caudal bones, I repeat, in man is a rare phenomenon, although their existence at all is not often suspected by those who have no knowledge of anatomy, some of whom have entertained the most singular ideas on the subject. Perhaps no theory was more singular than that of Lord Monboddo, an old Scottish judge, who believed that the absence of the tail was a phenomenon peculiar to the modern human races, and that the modern curtailment of this appendage was a result of their higher degree of civilisation. The worthy judge, at an early period of his investigations, believed that we must all be still born with tails, and that possibly the wise women and the doctors cut or twisted them off the moment the child was born. It used even to be told against his Lordship, that on one occasion when an addition was about to be made to his own family, he was caught hiding in the bedroom, in some corner of which he had secreted himself with a view of watching all the proceedings, and witnessing for himself the removal of the new-born infant's tail.

TUMOURS OF THE COCCYX—DOUBLE MONSTROSITY BY INCLUSION.

But leaving the mythical and mysterious part of the question, let me call your attention to this sketch (see Fig. 41) of the posterior aspect of an infant, whose entrance into the world created a great deal of noise some three years ago, and regarding whom a paragraph appeared in many newspapers, headed "CURIOUS MONSTROSITY—A CHILD BORN WITH A TAIL." The case occurred in the practice of my friend, Dr. Richardson of Stockton-on-Tees, who relieved the child of its extraordinary appendix by amputation, and who had the kindness to send me the tumour for dissection along with this sketch of the child, taken before the performance of the operation. The tumour, which is of an oval form and about six inches in length, by four in breadth, was attached to the skin of the back, opposite the middle of the sacrum, by a narrow rounded neck of about an inch in diameter, through which two or three small vessels passed into the tumour. At the lower end, which projected

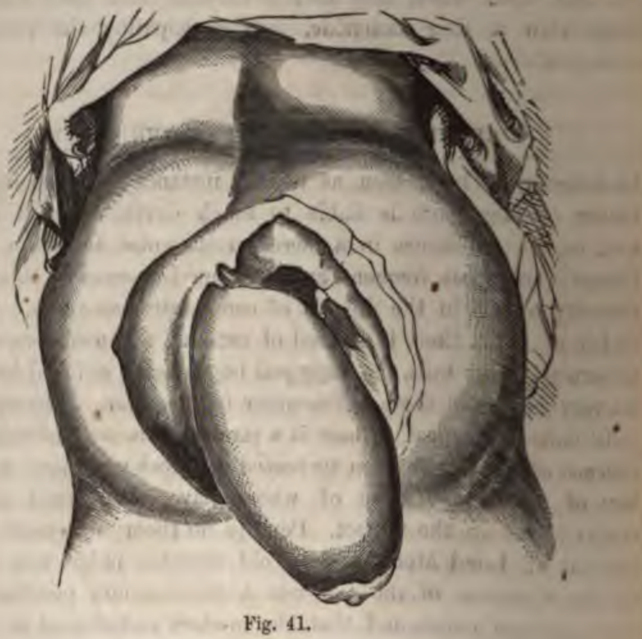


Fig. 41.

Fig. 41. Sketch of the coccygeal tumour attached to the child. Dr. Richardson's case.

slightly beyond the level of the folds of the nates, there was a slight depression, through which a point of bone could be distinctly felt, while from the upper extremity, on the surface which was turned towards the back of the infant, there grew a projection about two inches in length, which bore a perfect resemblance to a finger or toe, containing, as it did, two bones like phalanges, and being furnished at the tip with a well-developed nail. The skin of the child's back immediately surrounding the point to which this tumour was attached was altered in character, and resembled in appearance the mucous membrane of the lips, while the skin in contact with this peculiar structure was thickly covered with hair; the child was in perfectly good health; and Dr. Richardson very wisely determined upon relieving it of its extraordinary encumbrance, which he succeeded in doing with perfect safety by first tying a cord round the neck of the tumour,

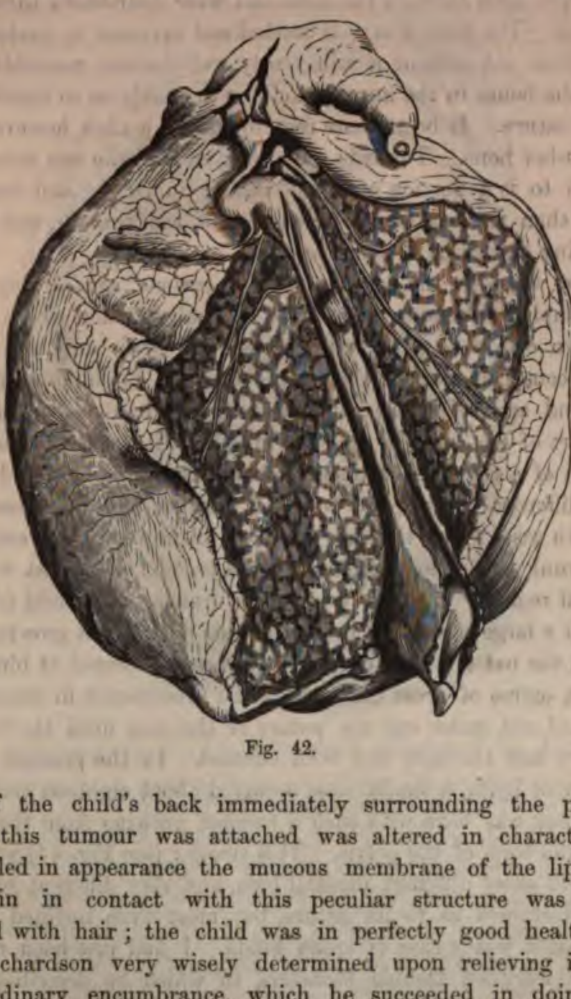


Fig. 42.

Fig. 42. Sketch of the coccygeal tumour dissected.

and then cutting it off beyond the ligature. There was no remarkable degree of hemorrhage, only one vessel requiring to be tied; and the infant showed no bad symptoms afterwards, while the wound speedily closed. On dissection, the tumour was found to consist, as you here see (see Fig. 42), of a mass of fat enveloped in skin, and containing in its midst a long bone, running nearly through the entire length of the growth, while a number of vessels and nerves came through the neck and were distributed throughout the mass. The bone was well ossified and invested by periosteum; but it does not present a sufficiently well-marked resemblance to any of the bones in the human skeleton to enable us to decide as to its real nature. It bears more resemblance to a tibia, however, than to any other bone. Towards the upper end of the one side it has attached to it a portion of tissue, redder in colour and denser in texture than the rest of the substance of the tumour, and almost resembling muscle in appearance.

Now, what is the nature of this curious caudal appendix? It is simply an instance of a kind of malformation which occurs when two ova have been impregnated, and when only one of the fœtuses comes to maturity, while the other is blighted at an early stage, and arrested in its development, but becomes adherent to some part of the body of its co-twin, where it appears at birth in the form of a tumour. Tumours of this kind may be found adhering to different parts of the bodies of infants, and we occasionally meet with cases where they are attached to the very lower extremity of the trunk and in connection with the coccyx, or at least with the coccygeal regions. I show you here a drawing of a child (see Fig. 43) with a large sacculated tumour of this description growing from between the nates. In this case the tumour presented at birth, and proved a source of great difficulty to the practitioner in attendance, who could not make out the nature of the case until the birth of the lower half the body had been effected. In the practice of Dr. Paterson, of Leith, a similar case occurred about eighteen years ago, when a boy was born with such a tumour growing from the lower part of the back of the pelvis. This tumour (see Fig. 44) was seen by a good many different medical men, and very different opinions were entertained as to its nature, but most were inclined to the belief that it was a case of spina bifida. I had just been reading Meckel's work on Double Monsters, in which he describes some cases of this kind, and came then to the conclusion, which I still believe to be the correct one, that Dr. Paterson's patient was another instance of a fœtus born with an undeveloped one attached to it; but the bearer of that supernumerary fœtus still lives, and as the tumour was never removed there has been no means of verifying the diagnosis. Here is still another drawing (see Fig. 45) of a case of this nature, occurring in the person of a girl, who came into the Hospital several years ago with a cystic mass attached to the back opposite the sacrum and coccyx, which had been there at birth, and which still continued to grow. A portion of the growth was removed, and it was found to consist chiefly of a few large cysts, which gave out an intolerably offensive secretion. There are some preparations of this kind in the museum of St. Bartholomew's Hospital in London, and among others a preparation of a supernumerary undeveloped fœtus, which was removed from the lower part of the back of an adult female by Mr. Wormald. The tumour

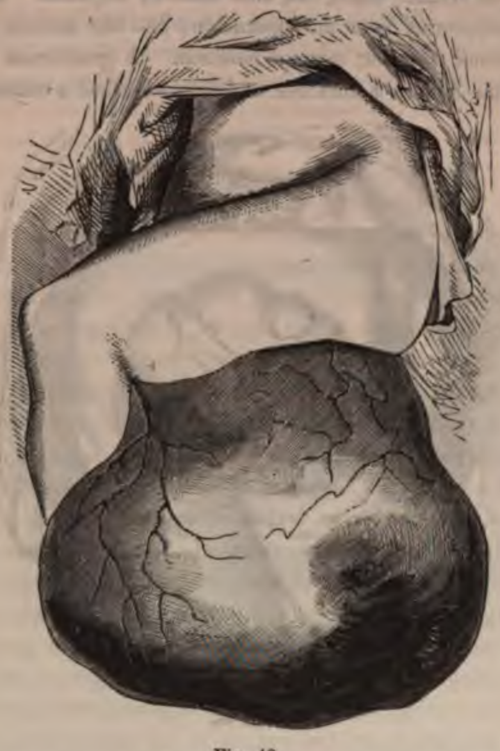


Fig. 43.

Fig. 43. Sketch of a coccygeal tumour which presented at birth.

in this case, Mr. Wormald writes me, seemed to come from the interior of the pelvis, and as it grew, the sacrum and coccyx were turned upwards and backwards. It was of enormous size, requiring an incision on each side of twenty-five inches in length for its removal, and on examination afterwards it was found to be composed of a mass of cysts, some of them containing a watery fluid, others steatomatous matter, hairs, fat, and osseous deposits. The patient gradually recovered from the operation; but the sacrum and coccyx never returned to their normal position. A gentleman died a few years ago, the heir to a Scottish earldom, who had a tumour growing

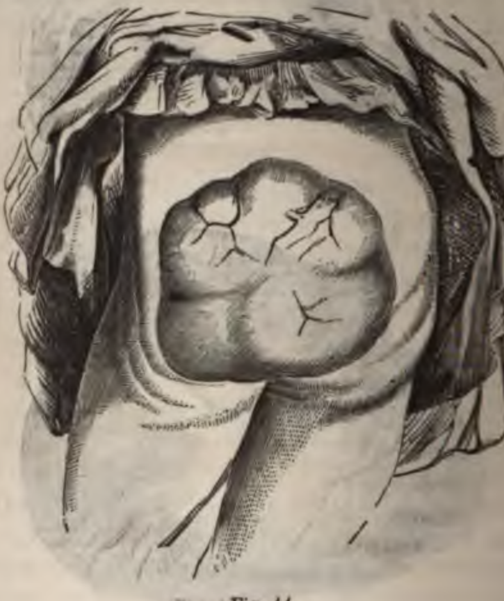


Fig. 44.

from the lower and back part of the trunk, regarding which endless consultations had been held during his lifetime. It was often discussed whether it would be safe and proper to remove it; and when he died, at the age of forty, it was found that this tumour, which had been a source of discomfort and uneasiness to him all his life, might very easily have been removed.

If you inquire into the nature of these tumours you will find them to vary very much as regards their structure. Sometimes they consist of masses of fatty substance alone; sometimes they contain

Fig. 44. Sketch of a coccygeal tumour occurring in a child born eighteen years ago and still living. Dr. Paterson's case.

bones, rudimentary, or more or less developed; or they may contain teeth. Some of them have been found having a jaw-bone with teeth in the sockets. Portions of intestine and portions of other organs and parts of the body have at times been found in them, all tending to show that they are merely instances of secondary blighted fœtuses attached to well-developed ones, and obtaining nourishment from them. Some of these secondary fœtuses remain in the most rudimentary condition possible, presenting only a cellular mass. Others again contain tissues more highly organised; and some of them present traces of parts approaching in development to the organs and parts of their more perfect mates. These additional fœtuses attached to the sacrum and coccyx form a puzzle, however, to teratologists, in this respect, that they cannot be found to be regulated in any way by a law which holds good in the case of double monsters of almost every other description. In all the common types of double monsters it is a law that like is always attached to like in the two bodies. Thus the chest of one child is always attached to the chest of another, the back to the back, a sternum to a sternum, an occiput to an occiput, an artery to an artery, a nerve to a nerve, the corresponding bone, muscle, artery, nerve, etc., of one body, to exactly the same corresponding bone, muscle, artery,

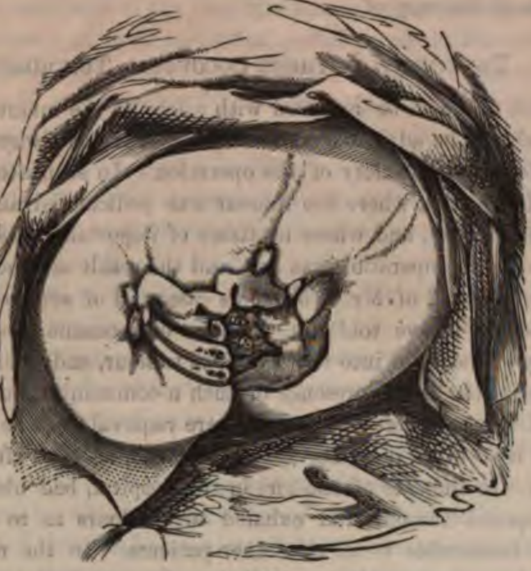


Fig. 45.

nerve, etc., of the other body of the double monster. But to this law there are some few and rare exceptions. Thus I have in my hand the skeleton of a fully-developed kitten which has the pelvis and posterior extremities of a secondary fœtal kitten attached to the lower end of the sternum. Such a union of unlike parts is very rare, and we may perhaps deduce a lesson from it in transcendental anatomy, as to the analogy between the pelvic and sternal bones. And the coccygeal tumours in question form also, I repeat, a very striking exception to a law which is so general; for in them you have parts and tissues of the secondary fœtus attached to parts and tissues of the developed child that are not at all similar. What are we to do in the way of

Treatment of these Coccygeal Tumours?

When they can be removed with safety to the infant, it will, of course, always be advisable to do so; but it is not always very easy to decide upon the safety of the operation. In such a case as that of Dr. Richardson, where the tumour was pediculated and attached by a narrow neck, and where no tissue of importance was present in the isthmus, the operation was safe, and the result satisfactory. The same may be said of Mr. Wormald's case, and of some others; but sometimes, as I have told you, portions of intestine pass out from the body of the child into the coccygeal tumour, and whenever there is any suspicion of the presence of such a communication the operation had better be left undone. Where removal is to be effected at all, it is best to do it as Dr. Richardson did, as soon after birth as possible. In the case of the girl in the hospital, bad ulcers formed in the opened tumour, and exhaled such odours as to render her presence intolerable to all the other patients. In the case of Dr. Paterson's patient, nothing at all was done, and the cystic mass has shrunk up and become reduced in size, instead of becoming developed along with the rest of the body; and the young man, who is now a clerk in a public office, works all day at his desk, sitting upon, and in one sense at least supported by, this undeveloped brother.

LECTURE XIII.

ON DYSMENORRHŒA.

GENTLEMEN—Yesterday, as some of you had an opportunity of seeing, I dilated the os and cervix uteri by dividing the portio vaginalis on each side in the case of a young unmarried female, who suffers great pain at each menstrual period; and as this affection, though rarely enough met with in hospital patients, is one of those which you will most frequently be called upon to treat when you come to practise, I think it will not be out of place for me, at the present time, to direct your attention to some of the varieties of dysmenorrhœa, or painful menstruation; to point out their nature and symptoms, and to explain to you how they may be most successfully treated.

Let me first of all observe, that there are many women who have no suffering during the menstrual period at all. Menstruation sets in without producing any unusual symptoms, and without exciting any notice till the blood is discovered escaping from the passages; and almost no amount of pain is experienced during the continuance of the flow. A very considerable number, however, do suffer pain at that period; in some the painful sensations being felt before the discharge sets in, whilst in others they are first experienced after the catamenial flow has become established. The pain in such cases may last for a longer or shorter period; usually it is not of long continuance, and as it is not very severe in character it is not much complained of by the patient. But there is a third class of females who ever and anon demand our aid, because of the high degree of suffering and agony they endure at the menstrual period, either before the blood begins to appear, or whilst the discharge is going on. Patients of this class—those labouring under dysmenorrhœa, as it is called, or painful menstruation, sometimes suffer to a degree which renders life a burden to them; for though in some instances the pain occurs only during two or three periods, and then gets cured and passes away, yet in most it continues long—it may be for many years, or until some curative treatment has been instituted. Many patients thus suffer the greatest agony from month to month, and no sooner has the pain of one period passed away than they begin to look forward with horror to the next, and the prospect renders their life miserable. You will find, further, that where this type of disordered menstruation occurs in married women, in many cases they remain incapable of bearing children until the dysmenorrhœa has been cured. The disease seldom interferes with the life of the patient; but it does interfere in a very great degree with her health and strength, and happiness. It is a disease, I repeat, which you will very frequently meet with in practice, and one by which you will bring much discredit on yourselves if you do not know how to detect and cure it.

Under what circumstances, let us first inquire, does menstruation become painful? Here I would, in the first place, remark, that the degree of pain experienced during menstruation, is not in any way regulated or modified by the amount of fluid which is discharged during the period of its flow. And the proof of this observation is to be found in the fact that some patients suffer much pain where there is little or almost no discharge of blood at all; while others with a very profuse discharge, may be quite free from pain during the whole period. You will meet with it, indeed, under the most opposite circumstances. In some it begins when the menses first appear, and lasts till some remedial measures be adopted. In others it only supervenes upon exposure to cold at a catamenial period, or upon some other cause producing chronic metritis or other affection of the womb. You will have it in other patients beginning after marriage, although it occurs much more frequently among unmarried females. You will meet with it occasionally among married women usually associated with sterility; but its occurrence in one who has been pregnant is altogether an exceptional case.

SEAT OF THE PAIN.

I am not going to dwell much on the subject of the seat and origin of the pain, for it is one of those points on which our knowledge is particularly defective. So much, however, seems certain, viz. that the pain may be seated in one or other of two organs; and dysmenorrhœa may therefore be divided into two classes, according as it originates, 1, in the ovary, or, 2, in the uterus.

I. OVARIAN DYSMENORRHŒA.

At each menstrual period one or other of the ovaries undergoes, as you are well aware, a variety of changes, which are all essential to the fulfilment of its physiological function, but which, at the same time, bring it into a condition that may be regarded as almost pathological. When at such times an ovum enlarges, comes to the surface of the ovary, and there escapes from its follicle; when such a degree of congestion is required as shall lead to an effusion of blood into the follicle to favour the expulsion of the ovum, and to fill up the cavity which is left; and when the organ is in a state of such high nervous excitability,—then it is easy to conceive how a slight aggravation of any of these phenomena may lead to the occurrence of dysmenorrhœa. It needs but a slight exaggeration of the congestion to produce inflammation; and no great exaltations of the nervous phenomena will be required for the full development of a distressing neuralgia. And, besides, from clinical observation, we know for certain that the ovary is an organ possessed of a certain degree of sensitiveness, and liable at times to be the seat of pain; for there are some women with perfectly developed ovaries and rudimentary uteri, in whom all the secondary phenomena of menstruation may occur, with the exception of the discharge from the imperfect or atrophic uterus. These women suffer from pain in the back and inguinal regions, and from the other uneasy sensations peculiar to women at the menstrual period; and though the symptoms are not so well marked as in females with all the organs fully developed, yet their occurrence in any degree is sufficient to warrant us in believing that in ordinary cases of dysmenorrhœa the ovaries may occasionally be the peculiar seat of the pain. I have lately seen two patients, who had both suffered for months continuously from pain, and all the other symptoms of dysmenorrhœa, but in whom any other form of dysmenorrhœa than this ovarian form could not properly occur, seeing that the uterus was in both cases altogether absent. You may meet with other instances of this malformation, however, where no pain is present. I have seen such a case along with Dr. Arthur Mitchell, where there was no uterus at all, and the vagina ended in a cul-de-sac. We could easily satisfy ourselves that there was no uterus by passing a sound into the bladder, and then introducing a finger high up into the rectum, when the sound could be readily felt above the apex of the vaginal sac without any intervening body or substance whatsoever. The ovaries seemed to be present, for the sexual appetite was developed, and all those feminine characteristics whose presen supposed to depend on a healthy condition of the ovaries; bu this instance there was no dorsal pain, nor any other sympto dysmenorrhœa. There are, again, some curious cases of malfo tion occasionally met with, where the ovary is found to descended into a hernial sac, and as has been related by Oldhan reference to such a case, the ovary has sometimes become sw and tender at the menstrual period, and given rise in this apparently, to the dorsal and other sympathetic pains. Finally me observe, there are other cases where the ovary becomes placed downwards, and is found lying in the recto-vaginal cul-d of the peritoneum; and in such instances it may at times be fe be enlarged, and tender to the touch, and clearly in a state of inflammation.

II. Uterine Dysmenorrhœa.

You might suppose, then, since such changes are known to in the ovary, and give rise to painful sensations, that this o should be regarded as the seat of the pain in all cases of dysm rhœa. But, on the other hand, pain is usually not the only sym present, for it is commonly accompanied with sickness, nausea, vomiting—such as you often see in the commencement of la where the pains and concomitant symptoms are only referable t uterus itself; and, therefore, I think we must come to the conclu that while there are some cases of dysmenorrhœa where the ralgia is localised in the ovaries, yet that in the greater nu of cases it is developed, and has its peculiar seat in the u itself.

Now, as the disease may depend on different morbid condi of the womb, you will find that it presents itself in several vari to which you must allow me to direct your attention somewhat in detail.

1. *Neuralgic Dysmenorrhœa.*—All pathologists admit a neur division. That is, all admit that dysmenorrhœa may occu patients who are subject to neuralgic affections, and in whom disappear from the other organs and parts of the body at the of menstruation, only to become concentrated, as it were, in region of the womb. Such patients complain habitually of and pains in the face, the head, the mammæ, the intercostal sp or elsewhere, and these pains all become aggravated for a day or

before the appearance of the catamenia. Then acute and constant pain begins to be developed in the uterus, and as the menstrual flow sets in, the pains in other parts of the body become quite relieved. In such cases, the uterine neuralgia persists during the whole menstrual period—remitting, perhaps, for a time, but never altogether intermitting.

2. *Congestive Dysmenorrhœa.*—Another class which most authors acknowledge as pretty frequent, is that of the congestive cases of dysmenorrhœa, where there is usually nothing to be found further than an exaggeration of the ordinary phenomena of menstruation. At every menstrual period there occurs a certain amount of congestion in the womb from the determination of blood to it, which is eventually relieved by an escape of the blood from the mucous lining of the organ. This congestion—which goes on not only in the uterus, but in the ovaries as well—may, and sometimes does, rise beyond the normal standard, and then uneasy sensations may be produced, and all the symptoms of perfect dysmenorrhœa.

3. *Inflammatory Dysmenorrhœa.*—Inflammatory forms of dysmenorrhœa are usually due to the occurrence of inflammation in the cervix, which is the portion of the uterus most frequently affected with that disease. Ulcers may be present around the os and be irritated by the fluid; or they may have existed at some former period, and in cicatrising they may have led to contractions of the orifice; or the organ may be indurated and thickened, and its lumen narrowed in consequence of chronic inflammation; or it may be at the time in a state of acute inflammation. In any case, the passage of the menstrual discharge through the morbidly affected part will be a source of actual and acute suffering.

4. *Gouty or Rheumatic Dysmenorrhœa.*—There is a fourth class, which we can only talk of as gouty or rheumatic, and that for two reasons, viz.—1st. Because it is a class where the patient has suffered before, or it may be at the time of the attack, from various other gouty or rheumatic diseases, or has shown symptoms such as are caused by excess of uric acids or urates in the blood. In the rheumatic cases, the patient has been subject to pains and swelling in the knee, the shoulder, and other large joints, perhaps has got some cardiac bruit; in the gouty cases, the smaller joints have been previously affected, and the patient suffers from excessive windy secretions in the bowel, and all the other symptoms usually met with in gouty individuals: it is in such cases that wind is sometimes apt to be developed, and to accumulate in the cavity of the uterus,

as described by Dr. Rigby. The second reason for our classifying such cases as gouty or rheumatic is that they yield, as has been shown by Dewees, Gooch, Hamilton, and others, to colchicum, guaiacum, and the other remedies which are ordinarily more especially efficacious in the treatment of gouty and rheumatic diseases generally.

5. Dysmenorrhœa may be accompanied by organic diseases, or by displacements of the uterus; or, rather, it may occur as a complication of such diseases or dislocations. In cases of polypus of the uterus, for instance, or of fibroid tumours of its walls, or of any other organic lesion, menstruation is often attended with great pain and discomfort, and in every form and degree of retroversion or anteversion, or other displacement of the womb, dysmenorrhœa is one of the most distressing and constant complications.

6. *Membranous Dysmenorrhœa.*—There is a membranous form of dysmenorrhœa, which, as was long ago noticed by Morgagni, a peculiar membrane is shed from the uterus, and discharged at every menstrual period.

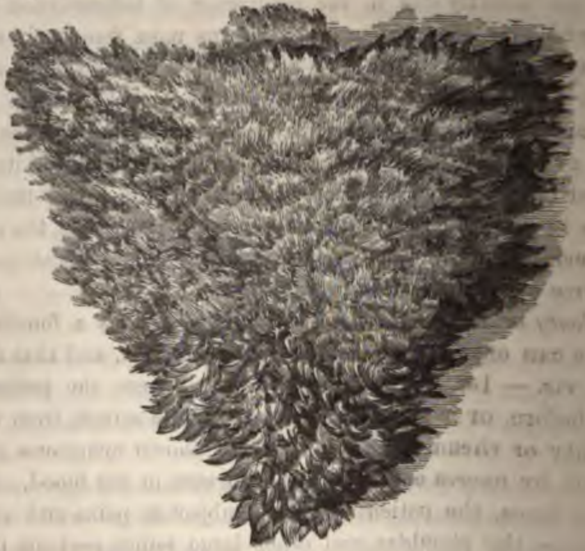


Fig. 46.

I show you here two such pieces of membrane which were brought to me by two of my patients some time ago, and are now pretty much broken down. But from the drawings which I now

Fig. 46. Sketch of a dysmenorrhœal membrane, as seen under water.

point out, you will obtain a clearer view of the form and appearances of the bodies in question. Dr. Granville, in his work on abortion and the diseases of menstruation, has figured the membranes from a long series of cases occurring in his own practice. In this form of dysmenorrhœa the pain is present from the commencement, and lasts for two or three days, or till such time as the obstructing membrane gets discharged; and then the patient is relieved till the next period, or in some cases till the second following menstruation. For it is to be observed, that though this membranous discharge may occur at every catamenial period in some cases, yet in others it takes place only every second, third, or fourth month. This was formerly regarded as an inflammatory form of the affection; and the explanation usually had recourse to was, that an exudative type of inflammation occurred here such as that occasionally seen in the intestinal canal, and more frequently in the respiratory tubes in cases of croup; and that a fibrinous or plastic effusion was poured out on the surface of the mucous membrane, which, in becoming organised, assumed the shape and size of the cavity in which it was formed. Rigby, Dewees, and others, supposed that such membranes were peculiarly liable to be produced in cases of gouty or rheumatic dysmenorrhœa, and they accordingly included the membranous in that other class of disordered menstruation. For some years past we have had our notions in regard

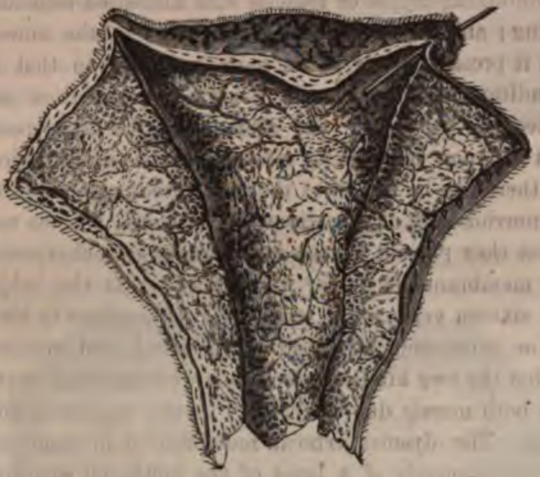


Fig. 47.

Fig. 47. A dysmenorrhœal membrane laid open (Coste).

to this matter entirely changed. Ever since I began to lecture on this subject, and to make some special observations regarding it, I came to the conclusion, and have always taught, that we had here to do, not with an inflammatory exudation, but with a desquamation or exfoliation of the mucous membrane of the uterus; and the proof that such is the case is irresistible. For if you examine it, particularly when it is placed in water and unfolded, you will find it to resemble, in every respect, the early decidua. Like the decidua it is a shut sac, triangular in form, rough and irregular on the outer surface, and on the interior smooth and of a cribriform appearance. It possesses the complex structure of the mucous membrane of the uterus, containing crypts or follicles with nucleated cells and vessels intervening; and in all respects corresponds to the mucous membrane, as it presents itself to us more especially in that hypertrophied condition which is seen in the earlier periods of pregnancy. If the decidua be simply the altered mucous membrane of the uterus, as it is now believed by most anatomists and physiologists to be, then there can be no doubt that the shreds cast off in this form of dysmenorrhœa are also portions of the altered mucous membrane, seeing that they present all the same anatomical characters as the decidual membrane does; for when working at the subject some fifteen or sixteen years ago, I gave some preparations to Mr. Goodsir to examine microscopically, and he declared, and enabled me to declare, that the two kinds of membrane were identical in structures, and were both merely due to changes in the mucous membrane of the uterus. The dysmenorrhœal membrane is in some cases very thin, consisting merely of a layer of the epithelial covering of the mucous membrane of the uterus; but more frequently it is, as I have told you, of greater thickness, and represents the whole of the swollen and hypertrophied membranes.

Some authors have doubted the possibility of this monthly exfoliation from the interior of the uterus, and have questioned as to how it could occur. You will find some admitting a desquamation of the epithelial covering, but scouting the idea of the whole or the greater portion of the mucous membrane becoming detached and discharged by the contractile efforts of the uterus. When I first published a memoir about it, Dr. Ashwell wrote to say that it was a very curious sort of observation to make, and one which he would defy me to prove, because it was utterly impossible to dissect off the mucous membrane of the uterus in the dead body. True, you cannot with the scalpel detach the mucous membrane from the interior of the uterus with perfect precision, but nevertheless you have proof sufficient in the identity of structure between the expelled membranes and the uterine mucosa to convince you that an exfoliation of the latter does occur in cases of membranous dysmenorrhœa, whether from fatty degeneration occurring in its deeper layers, or in consequence of some other change with which we are as yet unacquainted. The manner in which the separation of dysmenorrhœal membranes is effected is a subject that requires still to be investigated, as does also one other point in connection with this as well as some of the other varieties of uterine dysmenorrhœa, namely, the changes that occur in the walls of the uterus, particularly as regards their enlargement, or the increased development of muscular fibres in them at these periods.

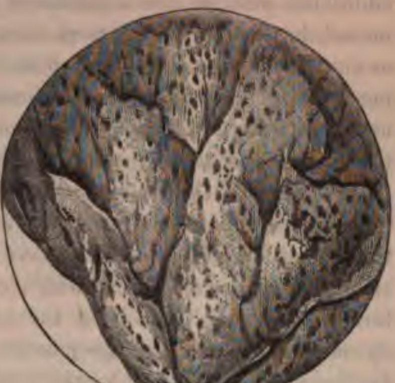


Fig. 48.

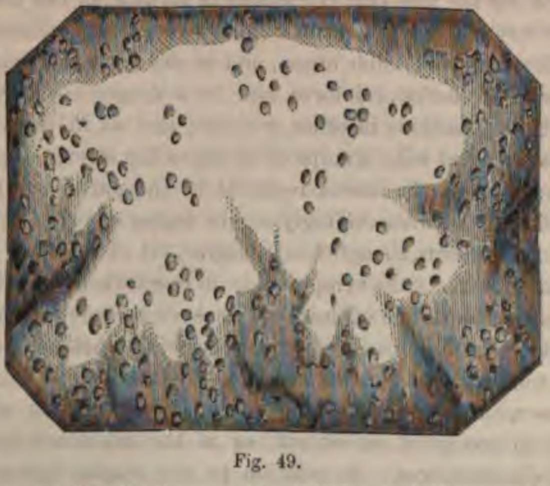


Fig. 49.

Let me merely add, in regard to this form of dysmenorrhœa, that

Fig. 48. Appearance presented by the inner surface of a uterine cast, when viewed with a low magnifying power.

Fig. 49 shows the openings of the uterine follicles more distinctly than the preceding.

more lately Handfield Jones has come to the same conclusion re ing the uterine casts, as that which I have explained to you that Lebert, Raciborski, and, last of all, Virchow, have furn additional proof of the correctness of our explanation. Vir indeed, has gone a step farther than any of the others, for he us that in opening the bodies of women who have died while s ing from dysmenorrhœa, he has found the mucous membrane o uterus in a state of partial separation; and has thus supplied tinct anatomical proof that up till that time was wanting,

7. *Obstructive Dysmenorrhœa.*—And lastly, there is an obstru form of dysmenorrhœa connected with a state of stricture, or traction of the calibre of the cervix uteri. The seat of it ma at the os tincæ, along the whole cervical canal, or at the o ternum, but usually it is at the external orifice. This form dysmenorrhœa was long ago pointed out in this School of Medi and much insisted on by a man of much renown as a teacher of Practice of Physic, Dr. Macintosh, who proposed a plan of t ment for the disease, of which I shall have more to say anon.

Then comes the question as to how pain arises in the uteru cases of dysmenorrhœa. The pains of labour, as I have endeavo to prove to you in the course of my obstetric lectures, are explicable by the fact that the uterus is thrown at the time in state of very active contraction. At the period of parturition it highly-developed muscular organ, and in expelling the fœtus it tracts with preternatural force, and to a degree correspondin spasmodic contractions in other muscles; and as in them exces action is attended with cramps or pains, so the strong action of muscular walls of the uterus required in the parturient proces attended with a correspondingly severe degree of pain. We hav action in the uterus, though less in degree, yet of the same kind, attended with the same symptoms in all cases where any obstruc is offered to the escape of fluids which have become accumulate its cavity. In such cases you have occurring what has been ca uterine tenesmus, or painful muscular contraction of the womb the same nature as those occurring in the bladder when urine a mulates to too great an extent, or in the intestinal tube un various circumstances. In relation to the simple form of dys norrhœa to which I first referred, I would remark, that the ute pain in such cases seems only to be explicable by the occurrenc irritation in that organ in a neuralgic subject: and as regards rheumatic and gouty forms of the disease, there is probably at time of menstruation a determination to the uterus of the morbid material which excites the specific symptoms in other parts of the body; just as a determination of it might occur to any other part or organ which happened to be in a state of exalted action. But I must again repeat what I have already told you, that we have as yet no accurate and distinct idea of the cause and source of the pain so bitterly complained of by patients suffering from the various forms of dysmenorrhœa.

Diagnosis of the Disease.

With respect to the diagnosis of dysmenorrhœa, there is not much that I have to tell you. You will generally be right in setting down a case as one of dysmenorrhœa where you have pain in the lumbar and uterine regions occurring at monthly intervals, accompanied with a bloody discharge from the womb, and relieved when this ceases to flow. But there is one mistake which you would possibly be in danger of making, and against which it is right that I should warn you—the mistake, namely, of supposing that you have to do with a simple case of dysmenorrhœa when a patient is suffering from the pains of an abortion. You will generally guard against such a mistake by making full inquiries into the history of the case, and by examining the womb so as to discover whether it be in any degree enlarged. Or the converse mistake in diagnosis may be made. It has twice happened in the history of the old Lying-in Hospital, in Park Place here, that maid-servants have been sent in to the Institution by Edinburgh practitioners who imagined that the patients were in labour, while they were only suffering from the severe pains of an aggravated form of dysmenorrhœa. And it so happened that in both of these instances, actions for damages were raised against the medical men (though they were ultimately suppressed) by patients who believed their moral character to be damaged by the erroneous diagnosis of their medical attendants. I need only allude to this subject, to prevent the possibility of your falling into such a grievous error.

The Prognosis

is usually perfectly favourable, but it necessarily varies according to the form of the disease.

Treatment of the Disease.

This we may consider under two divisions, according as it is intended to be *palliative* or *preventive*.

1. *Treatment of the Paroxysm.*—The first, or palliative treatment, is that which is required at the time of the attack, and you will find that in the severer cases you are driven to the administration of various stimulants, sedatives, and sudorifics, and to the application of sedatives locally. It is a common idea among dysmenorrhœic patients themselves that they can relieve the pain by drinking large quantities of infusions of sage, pennyroyal, and other vegetables with stimulating principles, and the belief is in a great degree confirmed by experience. It is only too common a custom with such patients to have recourse to stronger and less innocent stimulants; for many women, when suffering from dysmenorrhœa, make free use of various forms of alcoholic liquor, and usually with decided relief to their sufferings. But you are not called upon to prescribe such remedies in every case, and, except in extreme cases, you will be able to dispense with them altogether. The agent which you will find the most serviceable for relieving the pain of dysmenorrhœa, and that on which I chiefly rely, is morphia in one or other of its forms. You may begin by administering a strong opiate—for in these cases there seems to be a tolerance of the drug, and the patients bear large doses with impunity. You may give as much as forty drops of laudanum, or a corresponding dose of any other opiate, at first, and repeat the dose, or perhaps a smaller one, every hour or two hours afterwards till the pain begins to abate. You will do well in many cases to combine the morphia with some strong diffusible stimulant. Thus the addition of a drachm of chloric ether is often an admirable adjuvant to the action of opium; and I might add that you will find a teaspoonful of chloric ether in a wineglassful of water to be one of the readiest and most efficacious remedies of that class that you can employ. Many use camphor in this way; and sometimes camphor may be administered alone in large doses instead of opium in those cases where all forms of the latter disagree with the patient. Stramonium, belladonna, conium, Indian hemp, and many other narcotics, have all been used, and have all been found to be more or less efficacious for relieving the pain of dysmenorrhœa. But in most cases you will find opium the most serviceable remedy. You can often aid its action by exciting the skin, and in this way warm baths, vapour baths, hot drinks, and such like measures, come to be of service. Sometimes all these means fail, and you are called upon to administer some anæsthetic by the stomach or the lungs. Chloroform may be given internally in combination with cardamoms—ten or twenty drops of chloroform to the dose of

the compound tincture of cardamoms is a very common and a very useful prescription—but its use is more apt to be attended with headache than when it is inhaled in the form of a vapour. One of the first uses to which chloroform was put after the discovery of its anæsthetic properties, was to relieve the pain in a case of dysmenorrhœa. The patient was an unmarried lady, and one of those who lived in perpetual dread of the recurrence of the catamenia. She lived with her sister in a house in the New Town, and when I first went to administer the chloroform to her, I could hear her groans and cries as I entered the door, although she was lying in a room three storeys up. She suffered, in fact, quite as much pain at those periods as most women do when in labour, and it was no wonder that she looked forward to the monthly return of her agony with horror. I kept her asleep, at that time, for about half-an-hour with the chloroform, and she had no return of the pain during the continuance of that catamenial period. This was owing to my having administered the chloroform just at the commencement of the period; for, mark you, if you can bring the patient into the anæsthetic condition for only a short time at the very onset of the attack, you may hope to find her remaining free from pain while the discharge continues; whereas, if you delay it till many hours have elapsed, the drug must be used for a longer time, and the relief experienced is never so permanent.

As local sedatives, opium and belladonna have been often used, but with little benefit. Lately it has been proposed to use veratrine applied to the loins to relieve the dorsal pain; and its advantages have been much pressed upon the profession; but it possesses little or no claim to confidence. There are only two local anodynes from which I have obtained much good results, and these are carbonic acid gas and the vapour of chloroform. Dysmenorrhœa was one of the diseases which carbonic acid gas was first used to relieve. Mojon, of Geneva, wrote a paper some thirteen years ago, in which he showed the efficacy of the gas in relieving the pain of disordered menstruation; and I have often seen it afford instantaneous relief: or the vapour of chloroform may be employed locally, applied in the manner I described to you when speaking of its use in relieving the pains attendant on carcinoma uteri. It may, as I then told you, be applied alone or in combination with carbonic acid gas. When the local application of the vapour is sufficient to relieve the pain, it is always the most satisfactory mode of applying it, for then it does not have the sickening effect that sometimes attends its internal administration. Let me only add, in regard to the internal use of opium, that there is one great drawback attendant on it, and that is the horrible sickness which it causes in many patients; and if one of you could only devise some preparation of the drug which would develop its sedative action without producing any nausea, he would confer a mighty boon upon us all—patients and practitioners as well.

I have hitherto been speaking merely of palliative measures, such as are to be adopted during the time of the attack; but when you have used them successfully, you have not yet done all that is necessary for your patient. You must also treat the disease in the intervals between each menstrual period, with a view to prevent its recurrence. Now there are various preventive measures with which you must become acquainted, and which you must learn to apply to each appropriate case; and these measures must be adopted and carried out perseveringly and from month to month until a cure is effected; for you will find that when you are not making progress you are losing ground, and your unfortunate patient may relapse into a condition as bad or worse than that in which you found her. But I shall reserve the consideration of those measures for our next lecture.

LECTURE XIV.

TREATMENT OF DYSMENORRHŒA.

GENTLEMEN—Towards the close of my last lecture I was speaking to you about the treatment of dysmenorrhœa. The treatment of this disease, I then told you, might be considered under the two heads of the Palliative and Preventive; or, in other words—1. The treatment necessary to palliate and subdue one of the monthly paroxysms of the malady; and, 2. The treatment necessary to cure the disease, and so prevent in future the recurrence of these paroxysms.

I. PALLIATIVE TREATMENT.

In carrying out the palliative treatment we found that four leading classes of remedies might be used for the alleviation of the sufferings attendant upon a dysmenorrhœal paroxysm, viz.—

1. General diffusible stimulants—as chloric ether, spirit of nitrous ether, compound tincture of valerian, camphor, spirits of wine in warm water, etc.

2. General anodynes or anæsthetics; and particularly opium or morphia in their innumerable forms; and in exceptional cases, henbane, Indian hemp, stramonium, sumbul, chloroform by swallowing or inhalation, etc.

3. General diaphoretics, as antimony and ipecacuanha when combined with these anodynes, the small doses often seem to increase their good effects; and a general warm bath is occasionally of great use, probably upon the same principle. Let me here add that this auxiliary action of diaphoretics is specially of use when the dysmenorrhœal paroxysm has produced, or is attended by, heat of skin, rapidity of pulse, or, in short, by indications of febrile reaction.

4. Local anodynes and anæsthetics, as the injection of carbonic acid gas and vapour of chloroform; the application of belladonna and morphia ointment; warm hip-baths.

Before I quite the subject of palliative remedies, permit me to

add, that at the close of the last lecture, my friend Dr. Little, w
has long practised at Singapore, came and told me that in sev
cases of dysmenorrhœa he had frequently succeeded in relieving
patient by applying chloroform as an anæsthetic vesicant, if I m
so term it, in a manner which he had used first of all with suc
in curing some neuralgic symptoms from which he himself ha
one time suffered. His plan is this: A small circular piece of l
just of sufficient dimensions to be easily contained within a wa
glass, being steeped in chloroform, is placed on either groin, a
covered at once with the watch-glass. This has the effect in a
minutes of producing a blister, and is usually successful in reliev
the patient's sufferings.

So much for the measures to be employed for the immedi
relief of the more urgent symptoms of dysmenorrhœa—an indicat
of much importance, and one which all of you will very frequen
be called upon to fulfil to the utmost of your ability. But howe
important it may be to be able to combat with success the distress
symptoms of dysmenorrhœa, this is after all the least part of y
duty to your patient; for, however suitably and skilfully you m
apply your remedies, and however successfully you may meet
several symptoms, you will never by such means be able to sec
your patient against the recurrence of her monthly misery; and y
will be urgently called upon to adopt some measures for procur
her a more perfect and permanent relief. This leads me, theref
to speak now of

II. PREVENTIVE TREATMENT.

The preventive treatment of dysmenorrhœa includes all
remedial measures which may be had recourse to during the
tervals between the menstrual periods, with a view to the radi
cure of the diseased condition which gives rise to the menstr
paroxysms, and as these measures vary with the pathological ca
of the disease, we shall have to consider the treatment appropri
to each variety of it. Let me, however, premise that the same l
of treatment will often succeed in curing two quite different form
dysmenorrhœa, and, on the other hand, the same form of dysmen
rhœa may sometimes be cured in one patient by some means wh
will prove ineffectual in another case. Moreover, unless you
succeed in effecting a radical cure for your patient, you will find t
you are generally losing ground every month, and that she is gett
worse at every succeeding period; and therefore you must be

pared to employ a variety of measures, if need be, in each particular case.

1. *Treatment of Ovarian Dysmenorrhœa.*—No special organic or structural disease of the ovary has ever, as far as I am aware, been found to be a pathological cause of ovarian dysmenorrhœa. The morbid conditions of the ovary that have been hitherto observed to be connected with the production and persistence of dysmenorrhœa are neuralgia, congestion, and inflammation in their chronic forms. The preventive treatment of dysmenorrhœa, when dependent upon ovarian neuralgia, is the same in its principles and details as the preventive treatment of dysmenorrhœa when dependent upon uterine neuralgia: and that I will describe to you immediately. When dysmenorrhœa is kept up by a state of ovarian congestion or inflammation, we must try to reduce these morbid states during the catamenial intervals, by repeated leechings, applied to the cervix uteri, or hemorrhoidal vessels, by assiduous counter-irritation to the groins or sacrum, and by all the usual internal remedies and means employed against local inflammations and congestions of other isolated organs of the body.

2. *Treatment of Neuralgic Dysmenorrhœa.*—Where the disease assumes the neuralgic form, put the patient through a course or courses of the alteratives and tonics, particularly the mineral tonics, which are specially serviceable in all other neuralgic diseases. By this means, and by the enforcement of a good diet and regimen, try to raise the standard of her health up to the normal type, or indeed, if possible, above it. By following out such a line of treatment after a painful menstruation, you will sometimes be able to protect your patient from the same degree of suffering at the succeeding term. Set every organ to rights whose function seems in the least degree languid or impaired, whether it be the skin, stomach, bowels, kidney, etc. In this neuralgic form of dysmenorrhœa, regulated muscular exercise, riding on horseback, and analogous hygienic means, in the intervals, are sometimes of the highest moment as curative measures. Rouse and stimulate the mind as well as the body, by new studies and new scenes. In these cases a visit to some alterative or saline mineral waters is, in this double way, sometimes of wonderful use. Afterwards, a course of chalybeate waters or chalybeate pharmaceutical preparations, will sometimes establish the cure. Have no fear, for I believe it is a groundless fear, that the use of iron will congest and irritate the uterus. Ferruginous remedies are often our best remedies in the latter stages even of distinct

uterine congestions. Let me make one remark more before leaving the subject of neuralgic dysmenorrhœa. All forms of dysmenorrhœa, when long continued, are apt to become more or less neuralgic in their type, and sometimes remain and persist as such when the more immediate pathological states have been removed and cured. Hence it happens that many cases of dysmenorrhœa require to be treated as neuralgic at last which are not neuralgic at first.

3. *Treatment of Congestive and Inflammatory Dysmenorrhœa.*—When the morbid irritability of the uterus producing recurrent and successive paroxyms of dysmenorrhœa, is the result of chronic congestion of the organ, or of chronic inflammation in its cervix or walls, you can only hope for a permanent cure by permanently removing, in the first instance, the congestive or inflammatory morbid states that may be present. What antiphlogistic and other means we possess for fulfilling these indications, I shall have occasion to state to you at full length, when subsequently discussing these special morbid conditions themselves.

4. *Treatment of Gouty and Rheumatic Dysmenorrhœa.*—For the gouty and rheumatic forms of the disease, you will find useful results from the administration of colchicum and guaiacum, either alone, or in combination with alkalies. According to my experience, the best prescription you can order in such a case would contain six to ten grains of powder of guaiacum, and six or eight grains of bromide of potassium, with the addition of an equal quantity of magnesia, where this seems to be required, to act on the bowels. The use of the bromide of potassium, as Trousseau first tried to show, and Sir Charles Locock afterwards found to be confirmed in practice, is that it exerts a sedative action on the sexual organs possessed by no other drug in the Pharmacopœia; and such a powder as that I have indicated, taken three times a-day during the interval between two menstrual periods, will in many cases succeed in warding off any further attack of dysmenorrhœa.

5. *Treatment of Organic Dysmenorrhœa.*—Where the dysmenorrhœa is dependent on some organic disease of the uterus, the latter will require to be treated without any special regard to the neuralgia which occurs at the time of menstruation. You will only relieve the dysmenorrhœa by removing, when possible, the organic morbid state, as polypus, retroversion, etc.

6. *Treatment of Membranous Dysmenorrhœa.*—Before I speak of the radical treatment of the membranous form of the disease, I have to make one remark in reference to it, supplementary to what I was

saying to you yesterday about the pathology of membranous dysmenorrhœa, and it is this, that investigations are still wanting as to the influence which is exerted by the ovaries in exciting the formation of the membranes discharged in such cases. We do not know whether there exists any special kind of disease or diseased action in the ovaries, or whether on these occasions they become the seat of any unusual degree of excitement, such as might be indicated by a degree of change in the burst Graafian follicle, so great as to cause it to assume more nearly the character of the corpus luteum occurring on impregnation. As regards the treatment of membranous dysmenorrhœa, you will find that various plans of treatment have been recommended, according to the view entertained as to the nature of the disease. Thus, by some authors, the remedies appropriate for the cure of the rheumatic dysmenorrhœa have been much bepraised, and held to be of special advantage in this form of the affection; while others, who regarded it as inflammatory, and looked upon the membrane as a fibrinous exudation, held that a cure was only to be sought for by means of antiphlogistics. We have here, in fact, a most notable example of how a change in our ideas as to the pathology of a disease will lead to a corresponding change in our therapeutic procedures. For we now know that the disease is not peculiar to rheumatic subjects, nor produced by any peculiar rheumatic poison; and further, that it is not of a purely inflammatory character, but that it is due merely to an exaggeration of a normal condition, or to an exalted degree of a physiological action; and the consequent change brought about in our treatment consists in this, that while we administer bromides and iodides, and other internal remedies which are likely to exert an alterative action on the uterus, we at the same time apply local remedies with a view of changing the condition of the organ and modifying its action, so as to lead it to perform its functions in a healthier and more natural manner. I think I have sometimes seen good results in this way from the local application of mercurial preparations—putting the uterus, as it were, through a sort of independent mercurial course. It may very easily be applied by the patient herself, in the form of a medicated pessary, introduced twice a-day into the vagina and pushed up to the womb. Used in this way, mercury does produce not only a local effect, but also, in some exceptional cases, I have seen it produce its constitutional effects, and lead to salivation. That drugs applied in this form may be absorbed into the system, is evidenced also by the narcotic effect sometimes produced by morphia given in the form of pessaries. The constitutional action drug is not by any means so marked as when an equal quan administered per anum; but in some very susceptible pati have seen pessaries containing half-a-grain of morphia caus traction of the pupils, and all the effects of a full dose of the when taken into the stomach. But whether the mercury p a general action or not, I am certain that you will often find good resulting from its local application, all the more, if at the time some alterative and tonic constitutional treatment be emp On this treatment you will find some valuable practical remai the excellent work which Dr. Rigby has lately published o Diseases of Females.

In more obstinate cases I have sometimes used with adva remedies of an alterative type, applied directly to the lining brane of the uterus. This kind of treatment seems to be particularly indicated where, after each expulsion of a dysmenor membrane, a sort of leucorrhœal discharge from the interior o uterus sets in, and continues for a longer or shorter period. I be likened, on a small scale, to the lochial discharge occurring parturition, or after an abortion. In such cases some caust alterative stimulant, such as nitrate of silver, may be applied t interior of the uterus by means of this instrument resemblin porte-caustique of Lallemand for applying caustics to the orifi the spermatic ducts in males—only with this difference, that curved towards the point in the manner of the uterine soun order to suit the axes of the pelvis, and is furnished at two i from the end with a small knob to mark the normal length o uterine cavity. The instrument consists of a long tube curved the extremity, and provided with a stilette, which is capable of l pushed through the tube to about the extent of an inch—the le to which the tube is retracted being regulated by means of a which may be fixed at any point near the handle. In one si the stilette, in the part which may be protruded, is a groov which the finely-powdered nitrate of silver is placed. The in ment is introduced into the womb with the end of the stilette tected by the tube, and then the tube having been withdraw the required extent, the powder is scattered over all the interi the uterus by turning round the handle of the stilette. By means you may sometimes produce a salutary effect on the mu membrane; and other substances, such as pounded iodine, etc., be used in the same manner. Even perchloride of iron ma employed, but as it is too deliquescent to be kept applied in the form of powder, you will require to apply it in solution, by means of an instrument essentially of the same construction as that which I have described, only differing from it in having a narrow piece of sponge, about an inch in length, fixed to the end of the stilette for the absorption and application of the liquid. But, mark you, never think or dream of throwing liquids into the interior of the uterus by means of any injecting apparatus, for severe and fatal inflammations are very likely to ensue. Such a result may, perhaps, be caused by the fluid running along one or other patent Fallopian tube and escaping into the peritoneum; more probably it may be due to laceration of the mucous membrane and entrance of the fluid into one of the uterine veins; but, however it may be produced, the consequences of injecting fluids into the cavity of the womb are so often dangerous and deadly that the practice has now been given up, I believe, by all accoucheurs. We can still, however, apply solids with safety in the manner I have told you; and by doing so once, or twice, or thrice, in the intervals between the menstrual periods, you will often succeed in changing the action of the uterus, and in wearing out the tendency of its mucous membrane to become exfoliated at every menstruation.

7. *Treatment of Obstructive Dysmenorrhœa.*—Lastly, it remains for me to speak of the radical treatment of the mechanical form of dysmenorrhœa where there exists some obstruction to the escape of the menstrual secretion, or of those cases where the os or cervix uteri are too narrow and contracted to allow of the free discharge of the secreted menstrual fluid. It is a pathological principle in the case of all other hollow organs with orifices or canals of outlet, that when their canals or orifices become strictured or obstructed, accumulation of the appropriate fluid takes place within their cavities, that muscular contractions are then excited in their walls for the expulsion of the accumulated contents, and if these accumulations become common or chronic, the muscular coats of the distended organ are apt to become thickened and hypertrophied. This principle, for example, we see illustrated in the case of the bladder, when, from stricture of the urethra, an obstruction is presented to the free flow of the urine, and the manifest indication for treatment in such a case is the removal of the obstruction. The same pathological principle applies to the uterus in the case of contractions of the os and cervix, and the same principle should guide us in the treatment of it. Dr. Macintosh, a medical teacher of great reputation in this school some

twenty-five years ago, thought he was the first to call attention to this particular form of dysmenorrhœa, and proposed to treat it in the same manner as surgeons do strictures of the urethra. But, in passing, allow me to say that the idea that stricture of the os uteri may cause dysmenorrhœa, is far from being so novel as Dr. Macintosh believed, for it was known long before that it could not merely give rise to dysmenorrhœa, but that it could also be in some cases a source of sterility. Not only so, but the plan of treatment then recommended by Dr. Macintosh was forestalled ages before. For, in the works included among the Hippocratic writings, the disease is most distinctly spoken of, and the appropriate treatment described. In the thirteenth section of the Γυναικείων Πρῶτον, the treatment of those cases is given where sterility is due to some unusual conditions of the os uteri; and among other things, the writer tells us that when the orifice is very much contracted, it must be opened up with bougies and leaden instruments. So that this plan of treatment is at least 2500 years old. Some others among the older Greek and Roman writers on female diseases have also alluded to this form of dysmenorrhœa or sterility, and to its treatment by dilatation of the os uteri, though none so distinctly as the Father of Medicine himself. But there are various surgical works of later date in which mention is made of this matter in the most explicit terms. Thus in the *Marrow of Chirurgery*, published in the latter part of the seventeenth century by Mr. Cook, of Warwick, a work containing various curious notices and cases in obstetric, medical, and surgical practice, this author treats in one of his chapters of closure of the "inner orifice" of the womb, or os uteri, and recommends it to be enlarged when necessary by gentian root or prepared sponge, and afterwards by the introduction of hollow instruments of silver, ivory, or horn, and these means, he adds, are better than incision. When I first read these observations by Mr. Cook five or six years ago, it appeared to me that this English provincial practitioner had quite anticipated every modern principle in the treatment of these cases. Mr. Cook published another work several years before the *Marrow of Chirurgery* appeared. This second book was published in 1657, and entitled "*Select Observations on English Bodies;* or Cases both Empiricall and Historical performed on many eminent persons in desperate diseases; first written in Latin by Mr. John Hall, a physician residing at Stratford-on-Avon." This work (and the original Latin manuscript of Mr. Hall is in the possession of my friend Dr. Jackson of Edinburgh) does not contain among its two hundred cases any notice of any instances of dysmenorrhœa, and is more interesting in other respects than its medical relations. For Dr. John Hall—whose cases Cook translated from Latin into English—was the son-in-law of the immortal Shakspeare, having married Shakspeare's favourite daughter Susannah; and he inhabited and practised in Shakspeare's "great house" at Stratford after the poet's death. He died several years before his wife; and Susannah Shakspeare sold her husband's manuscript volumes to Mr. Cook. In his preface Cook tells us how cunningly Susannah drove the bargain with him for her husband's manuscript work, all the time denying it was her husband's. But I have no doubt that, though a puritan surgeon, the buyer was as sharp as the saleswoman. At least I am inclined to judge so from the fact that the remarkable passage which exists in his *Marrow of Chirurgery*, regarding the treatment of obstructive dysmenorrhœa, is taken by Cook deliberately almost verbatim, without his having tried the practice, and without one hint or word of honest acknowledgment, from a work published some years previously at Amsterdam, by one of the inventors of the obstetric lever.

In the *Medico-Chirurgical Observations* of Henry van Roonhuyse, which were "Englished out of Dutch by a careful hand" in the year 1676, you will find a chapter devoted to the consideration of *The Clausura Uteri* (p. 107), from which I take the liberty of citing the following paragraph:—"Proceeding to the third part of our division of the womb, which is that they call the neck of it—beginning from the inner end of the vagina, and being that space which is from that end of the vagina to the fundus uteri itself—we are to know that this neck is very narrow, and comes to be shut very close, and even so close that a thin stilette will not pass into the bottom of the womb, by which infirmity the womb remains shut, and it is caused by some cold humours, stale seed, or stale menstrua, whereby this neck comes to be swelled together when they are compacted upon it. . . . In some women this neck is so hardened, tapering out, and sunk down, that sometimes I can do them but little good by emollient and discutient fomentations, nor by anointing remedies; but am forced in that case to enlarge it by means of the radix gentiana, medulla sambuci, or even by a prepared and dried sponge, having been first moistened in melted white wax, and squeezed in a press, to make of it convenient pessaries, according to the exigency of the case, by which means the neck of the womb can be disclosed and widened, and made to have its due purgations.

Now, being thus widened, there may easily be inserted in the opening an instrument turned of silver, ivory, or horn, in the same fashion, but having one end somewhat thicker than the other, and the upper end being like a great Clyster-pipe, within turned hollow and pervious, of which I have caused to be made many, and of different fashions, some bigger and thicker than others, so I have them in readiness upon occasion. . . . The patient may, without any inconvenience, when the said instrument is inserted in the part, carry the same and go about with it, for a constant discharge of the womb. So that it is much better to make use, in this case, of this prepared instrument, whereby it may be constantly entertained, than to hasten the cure by the violence of a knife."

Dr. Macintosh was led, by considering that cases of stricture of the urethra are cured by means of dilating instruments, to apply the same treatment for the cure of strictures or contractions of the os uteri; and for this purpose he made use of straight metallic sounds or bougies of different degrees of thickness, such as those I now show you. He began the treatment by introducing very small probe-like rods or sounds into the os, and then gradually always larger and larger ones in succession, till the os was dilated to such an extent as easily to admit a staff of the size of a No. 13 urethra bougie, or even sometimes larger; and in his *Practice of Physic* he states the results of his treatment in such cases in the following words:—

"I have treated twenty cases of dysmenorrhœa, by dilating the os uteri, and have permanently cured eighteen of the patients. Of the eighteen successful cases, eight were either young unmarried women or living in a state of widowhood; ten were married, and living with their husbands. Of these ten, seven subsequently fell with child. This is the statement made in 1832. Since that period I have tried the practice, after every other means had failed, in seven cases; in one of the seven only has it failed, the others have been completely and permanently cured. Of the six successful cases, four have since had a child each. Thus, in twenty-seven women, twenty-four cures have taken place, and of these eleven have since had children. This plain statement of facts, and a visit to my Museum, should stop the sneers of an illiberal brotherhood."

It has been argued in relation to this kind of practice, that if the os uteri is open enough to admit of the entrance of a probe, it should admit of the escape of the menstrual fluid as well. But it always seems to me that the degree of dysmenorrhœa and the amount of suffering depend not so much on the actual degree of contraction in any case as on the amount of the fluid, or rather, on the rapidity with which it is secreted. If the secretion be very rapid from the commencement, or contains solid coagula or lymph, the os, though pervious to a probe, may be too small to allow all the eliminated fluid to escape from the uterine cavity. Consequently, the retained secretion will accumulate within the uterine cavity, and the distension produced by this accumulation will lead on to the establishment of expulsive or dysmenorrhœal pains. For where the os is relatively small, without being greatly and morbidly strictured, the pain is not perceived until after the discharge has set in, and even then it is not steady and continuous, but more paroxysmal in character. It may not altogether intermit, but it remits. When, I beg to repeat, the amount of fluid secreted is too great to allow of its easy escape, it becomes accumulated in the cavity, and causes pain by distending and exciting the uterus, till it begins to contract with such force as to expel a quantity of the fluid, and then a temporary relief is obtained which lasts until a re-accumulation of the secretion produces afresh the painful sensations. In this way retention and obstruction may even occur with a comparatively wide os, provided the menstrual fluid be very rapidly secreted, and especially if it be mixed up with solid masses of coagula or fibrine; and, on the other hand, in cases where the uterus gives out only and always a very small and scanty or rather a very slow secretion, no pain may be experienced, although the os may be of the smallest calibre. Mechanical dysmenorrhœa may occur, in short, in some cases where the os is nearly of the normal size, and does not of necessity occur where the os is contracted and strictured to the greatest possible degree; and it very generally happens that when irritation has once been applied to the womb, and the muscular fibres have once been called into action, the contractions go on for hours afterwards, and give rise to painful sensations.

I have repeatedly followed out Dr. Macintosh's plan of treatment by means of bougies of daily increasing size; and sometimes with perfect success. But you will find, if you come to try it, that it is an irksome and tedious process, taking up a great deal of your time, and often causing very great pain to the patient. So much suffering do some patients experience from this daily distension and dilatation of the os and cervix, that they are content to bear their monthly pain rather than submit to the ordeal of such a frequent torture; and therefore I have been led at various times to try different methods of attaining the object in view—viz. dilatation of the contracted orifice. I made use for a time, after the first stages tation were effected by bougies, of a fine, hollow, two-bladed ment, which could readily be passed into the canal of the and could then be dilated by having a bougie of larger size in along its cavity, or between its blades. Others have used ments with two blades, which could be separated by mea screw, somewhat resembling the instrument contrived by M for dilatation of the female urethra for the removal of calculi.

Again, as you are aware, some French surgeons have fou results in cases of stricture of the urethra from leaving bo the passage for a lengthened period; and this plan of treatm that disease would, doubtless, have come more into vogue, an been much more extensively employed, had it not been at with this one drawback, viz. that the urine required to pas the sides of the instrument, and was a source of constant ann and discomfort to the patient. In the case of stricture of the

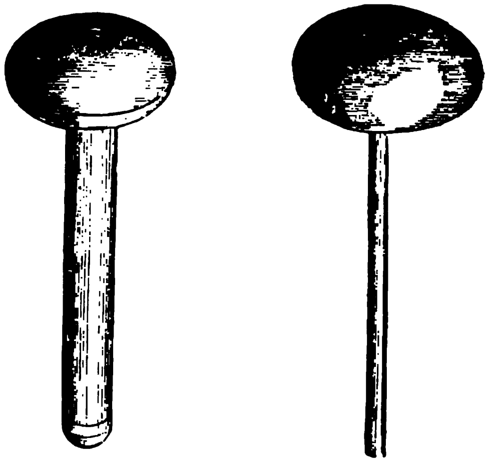


Fig. 50. Fig. 51.

cervix uteri, however, no such drawback could possibly occu the intervals between the catamenial periods nothing but a mucous secretion escapes along the cervical canal, and to sa own time, and that of the patient, I had recourse to the use manent bougies or small sounds, which are introduced in interior of the uterus and left there. And this treatment ha

Figs. 50 and 51. Intra-uterine stem pessaries used for dilatation of the cervix uteri.

attended, in many cases, with the happiest results; for there is this peculiarity connected with the use of bougies for dilating the cervix uteri, that while the introduction of the instrument sometimes causes pain for a short period at first, and possibly excites some spasmodic action in the muscular fibres, this very soon subsides when the instrument is left in the canal, and there it may remain days and weeks, without causing any further disturbance. For a long time I employed these intra-uterine bougies as the chief or only agents for the cure of mechanical dysmenorrhœa, passing in one of a larger size every three or four days. The principal disadvantage attendant on their use was the length of time required for obtaining a cure by means of them. That disadvantage may be, however, overcome by effecting the dilatation by sponge-tents, which will expand the os and cervical canal in twenty or thirty hours. But I very frequently found that when the dilatation was effected mechanically, and whether slowly by sounds, or rapidly by sponge-tents, relapse of the stricture or contraction was very apt to occur after a time; just as so often happens after the treatment of bad stricture of the male urethra by merely dilating instruments. For some years past I have thought that the best and speediest mode of cure is to have recourse at once to dilatation of the os by incising it at both sides. In order to understand the mechanism of this operation, just consider, for a moment, what is the object which you wish to attain by your treatment. A married patient applies to you for the cure of obstructive dysmenorrhœa and its usual accompaniment, sterility. Now, knowing that the one condition as well as the other is comparatively rare in the case of women who have once borne children, what you want to effect is to bring a uterus that has never contained an impregnated ovum as nearly as possible into the condition of one that has. The occurrence of pregnancy once, seems to bring the uterus into a condition favourable for its recurrence, although this may not be evident in ordinary cases where pregnancy goes on to the full term, and ends in the parturition of a living child, for then lactation comes in with

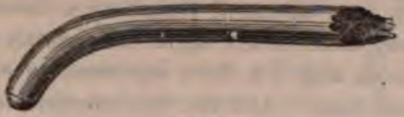


Fig. 52.

Fig. 52. The point of the staff used in the introduction of intra-uterine pessaries.

its counteracting tendencies. But you can satisfy yourselves
truth of the remark as a general principle, to which there are

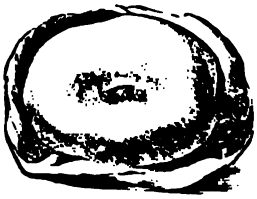



Fig. 53.

less many exceptions, by making the
sary observation in the case of mother
do not nurse, and some of whom in
quence bear a child almost annually
also in the case of women who are freq
aborting, for in them you will find t
soon as the immediate local and g
effects of the abortion have passed
impregnation very often occurs again immediately; wherea
the first instance, it may not have supervened for some m
or more after marriage. And the only appreciable differen
the state of the uterus in such a patient at the time of mar
and after parturition or after a miscarriage, is, that at the
period the os and cervix uteri are less contracted. A patulous
dition of these parts seems to admit of the more ready entran
the spermatic fluid, and so to favour impregnation. Now, then,
can we best bring the uterus of a female who has never
children into a condition resembling the uterus of one who has
aborted or borne living children!
If you look at the os tincæ of a
once gravid uterus, such as I now
show you, you will perceive it to
be of an elongated oval form, the
long axis of the opening being
directed from side to side; while
the orifice of a virgin uterus, such

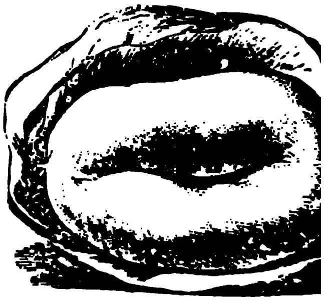


Fig. 54.

as this, is much smaller and more nearly circular. The os of
former kind of uterus is not only wider than that of the latter,
its form is different; and while by means of bougies or sponge-
you may render the opening of the virgin uterus for a time
ciently patent, you cannot by such means impart to it that l
tudinal form which seems to counteract its tendency again to con
on removal of the dilating force. But all this you can effect at
rapidly and certainly, by making incisions of sufficient depth
both sides of the cervix uteri. To make such incisions, you re
to introduce this instrument or metrotome as far as the os inten

Fig. 53. Sketch of the virgin os uteri.
Fig. 54. Sketch of the os uteri of a woman who has borne children.

where the incision begins—at first quite shallow, and then make it deeper as the instrument is withdrawn, till at the os externum the cervix is cut across in all its thickness. An incision of this nature into both sides of the cervix makes its canal wide and pyramidal in form, so as easily to admit the finger; and in healing leaves the orifice more like that of a uterus from which an impregnated ovum has been expelled. The first patient on whom I performed this operation, in 1843, was a lady of high rank, who had been married for several years, without having had a family, and who used to suffer at each menstrual period from most excruciating pains. She had heard about the dilatation, and had got up the whole subject—anatomy and all—and came to Edinburgh with the view of obtaining relief by that means. I explained to her that the process would occupy a considerable period—two months or more—when she at once said that the time was too long, and that unless she could be cured by some speedier method she would not submit to be treated at all. I then told her that I had often thought of dividing the cervix in such cases; and that, though I had never yet put it in practice, I believed it would be both a speedy and a most effectual means of procuring relief. She readily comprehended what was meant, and seeing the feasibility of the proposal, at once said that I must perform the operation on her as the first patient. I made the incisions as I have told you, but with a very imperfect instrument, and the patient soon was perfectly well, and about four months afterwards I heard that she had become pregnant. I was afraid that the cicatrix might present some obstruction to parturition, and so was Sir Charles Locock, who was to attend her in her confinement in London. I was waiting very anxiously to know what effect the operation might have had on the labour, when a letter from Sir Charles relieved me from my anxieties, for he told me that the labour had not only gone on quite favourably, but had even been remarkably easy for a first confinement. Since that period I have performed the operation

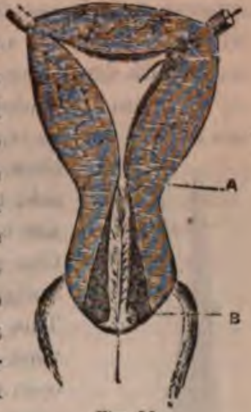


Fig. 55.

Fig. 55. Section of the uterus. The dark triangular portion on either side between A and B is intended to show the extent to which the incision should be made for the relief of obstructive dysmenorrhœa. It ought, however, to have been carried more closely to the reflection of the roof of the vagina on both sides.

in a very great number of cases. Last week, for example, I had recourse to it in not fewer than five cases. In fact, it has come, with me, to be the usual mode of treatment for all cases of dysmenorrhœa depending on contraction of the os or cervix uteri.

How are the incisions to be made? The instrument which I use for the purpose is a sort of concealed bistoury such as I now show you. The patient being placed on her left side, the point of the instrument is passed up to the os internum, and when there is a stricture at that point—which, however, is rarely the case—a slight notch is to be made there on either side. This, I say, you will rarely find it necessary to do; what you most commonly require, is to incise and open up the canal of the cervix and the external orifice. To do this you must introduce the instrument nearly to the internal os, and then, as you withdraw the instrument, press out the blade and cut through the cervix on one side in such a way that at first only the internal fibres are divided, and the incision, as it becomes lower, becomes also always deeper till the point emerges somewhat below, where the mucous membrane of the vagina becomes reflected on the cervix, and below this point the portio vaginalis uteri is divided in all its thickness. You then turn round the instrument, and make a similar incision on the other side. When you have thus divided either side you will feel that a conical opening has been left, the base of which includes all the thickness of the portio vaginalis uteri. The canal may contract to some degree afterwards when the wounds heal, and to prevent this I have sometimes made use of sponge-tents or intra-uterine bougies. But the introduction of these instruments in such cases causes pain and irritation of the raw lips of the wound; and you will find that by opening up the wound every two or three days for a time with the finger, you can effectually prevent all union by the first intention, and in this way provide against the chances of a recurrence of the stricture; or you may touch the corners of the wound with a piece of nitrate of

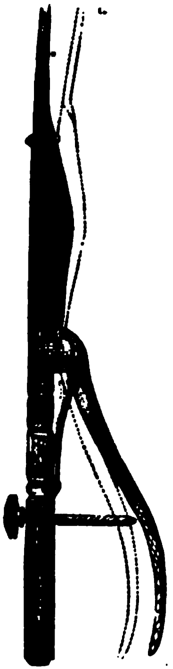


Fig. 56.

Fig. 56. The hysterotome or metrotome. To allow of the protrusion of the blade *a*, to the desired extent, the rod *b* in the handle must be screwed out to the proper distance.

silver with a like good result. Hemorrhage may sometimes follow division of the cervix, more particularly if you cut too deeply in the upper portion of it, where you run the risk by so doing of wounding some of the veins of the plexus uterinus; and it ought always to be guarded against by plugging the vagina immediately after the operation with some pieces of sponge, or by applying a saturated solution of perchloride of iron in glycerine with a brush to the raw surface. In some few instances the hemorrhage is pretty smart; but I have never seen it occur to any very alarming extent. Inflammation may sometimes be set up and spread to the surrounding loose cellular tissue, or the pelvic peritoneum; and though this rarely goes on to any dangerous extent, yet you may expect sometimes to meet it, and you must always be prepared to treat it, and treat it according to the principles which I have explained in speaking of pelvic inflammations in general. Attended with such rare and slight risks, the operation is a very safe one; and there is only this further to be observed in connection with it, that unless all the fibres are fully divided, there is sometimes a chance of the wound healing too rapidly, and the stricture being reproduced. But altogether, I believe I am entitled to say, that there are few operations in surgery so perfectly simple in their performance, and so entirely satisfactory in their results, as division of the cervix uteri in cases of obstructive dysmenorrhœa and sterility.

LECTURE XV.

ON CLOSURES AND CONTRACTIONS OF THE VAGINA, ETC.

GENTLEMEN—In the last of my Clinical Lectures I was speaking to you of dysmenorrhœa and the treatment of it, and more particularly of that form of the disease which is produced by a contraction or stricture of the canal of the cervix, or of the os uteri, offering a partial obstruction to the free escape of the secreted catamenial fluid. It sometimes happens that the catamenial discharge is impeded, or, indeed, arrested by such a contracted state of the os uteri, or more frequently of the vagina, as amounts not to mere stricture, but to actual obliteration or closure of the maternal canals. In cases of this kind, there is not merely dysmenorrhœa—you have amenorrhœa in addition. I allude to this subject on account of the circumstance that we have at present in the hospital a case of this kind, where retention of the menses has occurred in consequence of morbid contraction and closure of the vagina, and probably of the os uteri also. The account of the case, as it stands in the hospital records, is as follows :—

"I. A., aged 21 ; admitted January 3d. Usually very healthy, until her confinement with her first child, eighteen months since. She then gave birth to a male child after a protracted labour, attended with great suffering, and lasting for two nights and one day. Living at the time in the country, she was attended during the labour by some female friends only, the medical practitioner of the district being from home at the time, and not able to see her until five hours after the birth of the child, when he removed the placenta, which had been retained in utero until his arrival. The removal of the placenta was attended with much pain. She states that she suffered from 'inflammation' for some time after delivery, but does not remember having had any purulent discharge from the vagina. It was six weeks before she left her bed, and four months before she was quite convalescent.

"Previously to her pregnancy and delivery, she had menstruated at somewhat irregular periods, the catamenia being occasionally absent for two months together but never exceeding that interval. Since her confinement she has never once menstruated, but at first suffered considerable pain at the usual monthly periods although the catamenia did not appear externally. This pain she describes as of a lancinating character, accompanied by 'bearing-down feelings,' and the presence of a defined tumour in the lower part of the abdomen. This tumour disappeared partially after a variable time, being tender on pressure, especially on the left side. She has been under medical treatment at different times, blisters and counter-irritation to the surface of the abdomen having been tried, but without success. No local remedial measures have hitherto been adopted.

"On examination, a roundish tumour can be felt in the supra-pubic region, extending as high up as three inches above the pubes; somewhat tender on pressure, and with its fundus leaning to the left side.

"About an inch above the orifice of the vagina, that canal is felt suddenly contracting. The contraction is so great as only to leave an orifice large enough to admit the tip of the little finger. Above this orifice a canal runs upward for an inch or more, as ascertained by the passage of a probe or sound. On January 4th, this contracted orifice was begun to be dilated by the introduction of a sponge-tent. A tent of a larger size was introduced on the 5th.

"On the 6th, the first contraction was found completely dilated by the tent, and the finger could now be readily passed into the upper portion of the vagina, to the extent of two inches, when a second and closer constriction was discovered.

"On January 7th, the patient was put under the influence of chloroform, and Professor Simpson, upon examination, found that the narrowing was not so much of the nature of a stricture as an adhesion of the walls of the remaining upper part of the vagina. This adhesion was easily broken down by the finger; but the os and cervix could not be completely exposed, owing apparently to the presence of a septum still intervening. The os and cervix appear to be much inclined to the left side. There was slight hemorrhage after this breaking down of the adhesions between the vaginal walls."

I would only add further, in regard to this case, that the patient looks healthy and strong, and that the difficulty in making out the state of matters in the generative organs was increased by the circumstance that the uterus is partially displaced, the os being bent down to the left side and fixed there. A slight degree of febrile action supervened on separation with the finger of the vaginal adhesions. This irritation we must allow fairly to subside before we take any other steps for our patient's relief. When she is quite recovered, we shall proceed to divide the intervening septum of which you have heard, and try to afford an exit to the accumulated catamenial fluid.

I. CAUSES OF OCCLUSION AND STRICTURE OF THE VAGINA.

1. *Contraction and Closure of the Vagina as a Result of Difficult Parturition.*—In relation to occlusion of the uterine or vaginal passages causing retention of the menstrual fluid, let me state that, when this occurs as a consequence of parturition, it is usually due to inflammation excited during the process by the long-continued pressure of the child's head on the maternal soft parts, and which ends in sloughing and adhesion of opposing raw surfaces. Such destructive gangrenous inflammation in the maternal passages is

more frequently owing to the want of operative interference than to the improper use of instruments; for in most of the cases where this accident has happened, it might have been avoided by applying instruments to hasten the labour, and by relieving the parts more early from the fatal continued pressure to which they are subjected. Pressure, however slight in degree, when applied continuously for a lengthened period to any part, has a much more prejudicial effect upon the life of the structures, than a degree of pressure, however strong, which is only applied during a short space of time. In treating of this point in connection with parturition, my friend, Dr. Beatty, refers to a fact which is very impressive and instructive—viz., that when a malingerer in the army wishes to produce on his leg, or on some part of his body, a sore which shall cause him to be invalided, he knows that it is not necessary to inflict on himself any great and severe blow to produce the ulcer, but he simply straps down a coin on the chosen spot with a slight degree of pressure, and lets it there remain till such time as the vitality of the tissues pressed upon has been destroyed and the part is ready to slough away—the pathological fact being, I repeat, that slight pressure long continued is more apt to produce gangrene and mortification of a part than an infinitely higher degree of pressure applied for a shorter period.

Moreover, when inflammation and sloughing are produced in the vagina, there is, in the process of healing, thrown out at the seat of these changes a new sort of so-called "cicatricial" tissue, which induces in the part a very strong disposition to contract in healing. It is the same sort of change which you see occurring in cases of burns on the neck, for example, and the consequences are of the same nature; for, as in the neck obstinate contractions and almost irremediable deformities occur, so here you have contractions occurring, and deformities and displacements produced by the gradual contractions of the new cicatricial tissue, which it is a matter of the greatest difficulty to reform and remedy. In our case in the hospital, contraction to a great degree has occurred at the lower site of the vaginal stricture, and there was adhesion between opposed surfaces at some points situated higher up in the canal.

Allow me here merely to add, in passing, that the vaginal contractions which follow difficult labour are not, by any means, always of course so great as to produce, as in our present patient, entire closure of the canal, and consequent amenorrhœa and dysmenorrhœa. Much more frequently they are less in degree, and cause, in the vagina, only partial contractions and strictures of very various and irregular forms.

2. *Closure and Contraction of the Vagina as a Result of Inflammation, and independently of Pregnancy.*—But you may meet with cases of closure of the genital passages of the female which have come on as a result of inflammation, occurring quite independently of labour. Thus you may see inflammation of the vagina, and then usually in its lowest point, in young children, ending in contraction or closure of the canal; and when the patient arrives at puberty, menstruation is interfered with, and there may even be complete obstruction to the catamenial flow. That such cases should ever and anon occur need not be to any of you a matter of surprise, for you have here the constant irritation of urine, which is frequently acrid in its nature, tending to excite and inflame the parts; and, in very young children, a leucorrhœal discharge and a degree of chronic inflammation in the lower end of the vagina are phenomena of very frequent observation. But it is not in such cases as these, where want of cleanliness is the chief cause of the morbid condition, that the inflammatory contractions which we are considering are very apt to occur. They take place, I believe, more frequently under quite different circumstances—viz., where, under a specific type of inflammation, there seems to be a special tendency in the part to the development of some uniting material, and an almost insuperable tendency to adhesion between opposing excoriated surfaces. This tendency to the union or adhesion is not unfrequently seen in young children at the very orifice of the vagina, and is limited to that point and to the portion of mucous membrane more immediately external to it, without its stretching upwards along the canal of the vagina. I saw two instances of this kind of closure of the vulva, last year, in the cases of children who were well nursed and attended to, and where there was no want of cleanliness whatever; yet in both this tendency to adhesion of the sides of the vulvar orifice of the vagina was very marked; and when the adhesions were broken down, and the lips of the orifice separated, they always speedily showed an inclination to reunite. There was here in fact a type of inflammation of the vagina of which no description has yet been attempted to be given, attended with no formation of pus, and tending merely but inveterately to the formation of adhesions. In such cases separation of the opposing surfaces is not enough to effect a permanent cure of the morbid condition. You may tear up the adhesions with a probe, or with the head of a pin, or by stretching the lips with the fingers; but the sides of the canal will again cohere, unless the nurse be taught carefully to introduce some lint steeped in oil or glycerine every day,

to prevent the separated surfaces from coming into constant contact. In such cases the adhesion comes on usually without any very marked symptoms. Perhaps, in consequence of pain in micturition or other reasons, the nurse examines the parts, and is alarmed by noticing the obliteration of the vaginal orifice. On a proper inspection you will find the os vaginæ (as in some cases of congenital closure of the same orifice) closed up by a thin greyish membrane, which is non-vascular; and when this is torn across no hemorrhage ensues.

You may meet likewise among adults with cases of a kind of adhesive or obliterative vaginitis of an analogous type. But the disease in adults differs from the disease in infants in one or two important respects. In infants this inflammatory closure is usually limited to the very orifice of the vagina, and produces complete occlusion of the canal. In adults it generally commences at the upper part of the vagina, and spreads gradually downward, and seldom causes complete closure. In infants there is commonly cohesion merely of the opposed sides of the orifice of the vagina, without any tendency to circular contraction in the calibre or circumference of the orifice. In adults, on the contrary, the state of inflammatory cohesion and obliteration is almost always attended with a simultaneous tendency to circumferential contraction of the canal at the site of the disease, so that when it is limited, as it often is, to the top of the vagina, the os uteri is felt drawn up, as it were, to the apex of a narrow conical or funnel-shaped cavity. I have met, however, with obliterative or adhesive vaginitis without the co-existence of this circular contraction. For example, I saw some years ago a remarkable instance of this form of malady along with Dr. Dickson, in the person of an adult unmarried lady, who was suffering from retention of the menses, and in whom I found the vagina completely occluded. The occlusion here was due to cohesion of the opposite walls of the canal, which had become glued together in consequence, apparently, of chronic inflammation—not very firmly, but just so that they could be easily separated by the finger, and very much resembling to the touch that degree of adhesion which you often find between the contiguous serous surfaces when making a post-mortem examination of patients who have died of subacute peritonitis or pleuritis. Then there is this peculiarity sometimes noticeable in such cases as these, that the adhesion does not apparently become in any marked degree strengthened by being left undisturbed during a lengthened period; for even where it has existed, or appears to have existed, for months at least, and perhaps years, pressure with the finger still suffices to overcome it. Nor does frequency of separation seem to affect much the degree of firmness of these adhesions. You may separate adhesions such as I have been speaking of, several times at intervals of months, and the adhesions which are reproduced after rupture of the pre-existing ones, never seem to be in any degree firmer than those which were originally present. I can only compare the obstinate tendency to recur manifested by these adhesions and contractions in the vagina, to the obstinacy of recurrence seen in cases of flexion of the fingers, produced by morbid contraction of the palmar fascia, after the employment of operative measures for its relief; and it may be that the cause of both forms of affection is the same in kind. There is evidently a tendency in some rare cases to the occurrence of obliterative inflammation of the uterine canal itself; for in the instances I refer to you may open up the canal repeatedly with the uterine sound, and yet they will occasionally come back to you with perfect amenorrhœa, and when you pass again the sound along the canal you will have the sensation imparted to you of the instrument separating the adherent surfaces, just as you can feel the adhesions of the vagina separating under the pressure of the finger. In such cases the inflammatory process seems to have the result of causing the epithelial lining to scale off, and thus permitting the sub-epithelial tissues of opposing surfaces to come into contact and to cohere. In the few cases in which I have noticed this morbid state, the patients were all, or almost all, the subjects of amenorrhœa from an undeveloped or undersized uterus;—a complication to which I will direct your attention on a subsequent occasion.

3. *Closures and Contractions of the Vagina from congenital malformation.*—We have thus seen that occlusion of the vagina may result, first, from inflammation supervening on parturition; and, secondly, from inflammation, or at least from morbid cohesions, occurring independently of that process. But there is a third class of cases, rarer, certainly, in their occurrence, than the two I have been telling you of, but of which instances will occasionally present themselves to you in practice, where the obliteration of this canal is not inflammatory in its origin, but is due to some congenital malformation. Sometimes the orifice of the vagina is completely occluded, or nearly so, in consequence of the hymen being developed to an unusual degree and of unusual thickness, so as to render the vagina imperforate, or to leave an orifice too small to admit of the fulfilment of

its functions. If you study the homologies between the male and female organs of generation, you will find, I think, that the hymen is in the female a representative, or analogue, of the fully closed perineum of the male; and its excessive development in the class of cases I allude to, leading to occlusion of the vaginal canal, and when complete, to retention of the menstrual secretion, only indicates a tendency in the female to that more complete closure of the perineum which occurs as the normal type of development in the male. Congenital occlusion may occur not only at the introitus vaginæ, but may be seated higher up; just as we find in the case of congenital obliteration of the bowel, where the seat of closure is usually at the lower end, but is sometimes found in different points of its course. When situated high up in the vaginal canal, congenital closures of it are not generally local and limited to one point. Generally the occlusion is complete from the point you touch with your finger in examination, up to the os uteri. Often, indeed, in these cases where the vagina ends, an inch or two above its os, in a cul-de-sac, the uterus itself is imperfectly developed, and rudimentary, or, it may be, altogether absent; so that if you could with the scalpel restore the higher part of the vagina, it would be attended with no practical benefit. Usually, however, when the vagina is completely occluded and closed for any considerable length of its course by congenital malformation, the walls of the rectum behind, and of the urethra or bladder in front, are so intimately blended and united, and the amount of tissue existing between them is so slight, as to render any operative attempts at restoring or extending the vaginal canal both futile and dangerous. I have seen this kind of operation repeatedly and cautiously tried, but never with complete and permanent success.

What are the phenomena resulting from this state of affairs? What forms of distress and suffering do these contractions and occlusions of the genital canals entail on the patient, so as to render their investigation a matter of practical moment to us? What, in short, are

II. THE SYMPTOMS AND DIAGNOSIS?

You will have often patients of eighteen or twenty, or older, consulting you, who suppose themselves to be the subject of obstructive amenorrhœa, complaining that the catamenial discharge has never appeared. In these cases, the patient herself is not unfrequently conscious of peculiar sensations and uneasiness in the loins or pelvis, and sometimes of a state of general *malaise*, at particular and irregular monthly periods, which seem referable only to a menstrual molimen. In forty-nine out of fifty cases, it will turn out to be only an instance of retarded menstruation, but in the fiftieth there is present some mechanical cause. There may be obliteration at the vulva, or os vaginæ, either congenital or acquired, or it may be higher up in the vaginal canal, or the uterus may be imperfectly developed and small, though open; or, far more rarely, the os may be closed, and the organ rudimentary or absent. Again, it may be that after a parturition the patient does not again begin to menstruate as before, not even when the period of lactation has been brought to a close; but a tumour begins to be perceptible above the pubis, gradually enlarging month by month, and leading the patient, perhaps, to imagine that she has again become pregnant. In one case which I saw along with Dr. Keiller, the patient had come to delude herself with this idea. She had had a long and tedious confinement, which led to inflammation and sloughing in the vagina where contraction and adhesion between the opposite surfaces, and finally, complete occlusion of the canal, ensued. Every month she had a feeling as if she should be unwell, but no bloody discharge appeared externally. It was, nevertheless, secreted on these occasions; but instead of being allowed to escape it became pent up and accumulated within the cavity of the uterus, which gradually filled and got distended and dilated to such a degree as to form in the end a hypogastric tumour, smooth on the surface and of considerable size. On examination, per vaginam, all that could be felt by the finger was the upper end of the canal perfectly obliterated, and preventing all possibility of feeling the os uteri. How can you make sure, in such a case as that of which I have been speaking, that the enlargement of the uterus is due to an accumulation of the retained menstrual fluid? You can only argue it out rationally in some such way as this:—The patient has had no catamenial discharge appearing externally for some months, although formerly she menstruated quite regularly. Then there is, perhaps, the further history of a tedious labour, producing symptoms of inflammation and sloughing in the vagina, or of inflammation having occurred there from other causes. The patient, moreover, has a feeling of distension referred to the womb; and a tumour slowly and gradually enlarging is felt rising above the pubes, and imparts, it may be, a very indistinct feeling of fluctuation. The fluctuation may be more distinctly felt by the finger introduced into the vagina, or more distinctly still on passing it along the rectum past the point where the vagina is occluded. In most cases where you have to do with fluid fluctuating collections in the pelvis, the diagnosis can be facilitated, and the nature of the case clearly made out, by introducing an exploring needle into the part and drawing off some of the fluid. But in such cases as we are now considering, this instrument affords us no assistance, for the fluid is then too thick and glutinous to allow of its flowing through such a slender tube. In the case of Dr. Keiller's patient, of whom I have told you, I introduced a common-sized trocar and canula such as are used for tapping hydroceles, with the view of emptying the uterine sac; but no fluid would come. The fluid is very viscid and glutinous, dark and tarry, and does not flow out except through an opening of considerable size. By due physical examination, with the finger and sound in the vagina and rectum, you can make out much, or it may be everything, with regard to the anatomical site, extent, and character of the contractions and closures that exist, the condition of the uterus, etc.

In reference to the effect of complete closure of the vagina or os uteri upon the phenomena of menstruation, let me make in conclusion these remarks:—1. Usually under this condition of matters, and when at the same time the uterus and ovaries are fully developed, there is a gradual accumulation of menstrual fluid above the site of occlusion which increases with recurring dysmenorrhœal pains from month to month. But there are exceptions to this general law; for, 2. It happens sometimes, as in our patient in the hospital, that the accompanying dysmenorrhœal pains and symptoms disappear for a time, although the accumulation goes on increasing, as shown by the increasing size of the distended uterus. And again, 3. Occasionally there is no increasing accumulation of menstrual fluid in the uterus after many months, although the closure remains complete; or, indeed, there may be no accumulation at all. I have seen in practice two or three well-marked instances of this last exceptional form of case. The first instance in which my attention was specially called to it occurred many years ago now, in a patient who had been the subject of extensive sloughing of the upper part of the vagina after delivery. A vesico-vaginal fistula had followed. A surgeon had applied the actual cautery repeatedly to the edges of the fistula; and, in consequence, the os uteri became closed and menstruation ceased. During the last years of her life, this patient repeatedly applied to me to re-open the os uteri with a small steel sound when menstruation ceased for some consecutive months. This treatment regularly relieved her, and menstruation always regularly recurred for some time after it; but on no occasion did I find an accumulation of menstrual fluid in the uterus when I reopened the occluded os.

IV. Treatment of Closure of Vagina, etc., when producing Obstructive Amenorrhœa.

If you meet with a case of amenorrhœa combined with dysmenorrhœa in a patient who has got a tumour in the region of the uterus, which increases in size every month, and is evidently due to an accumulation of fluid in the uterine cavity, and if in this patient an occlusion of the vagina prevents you from reaching the cervix uteri, it will be your duty in such a case to give a vent to the pent-up fluid. An incision or perforation of some sort must be made through the intervening septum, so as to open up the closed canal and allow of the escape of the accumulated secretion. As to the propriety of such a procedure, nay—even as to the urgency of it—there cannot be a doubt. But there is one thing I have to warn you against in connection with it, viz. that the operation is by no means free from danger. When a young female is brought to you with the womb or vagina distended by long-retained menstrual secretion, and even only a thin septum intervenes between your exploring finger and the retained fluid, beware of making light of such a case to the friends, and beware, above all, of telling them that the operation you are about to undertake is either harmless or trivial. For when the case has seemed of the simplest kind, and has appeared as if it would easily be remedied by a slight incision, it has often happened that the patient has been thrown into great danger from the operation; and in not a few instances the result has proved fatal. The risk becomes very much greater when the seat of closure or obstruction is high up in the vagina, for there the mere division of these organic contractions is sometimes in itself dangerous, even without the additional peril derived from the chance of inflammation in the cavity and walls of the distended uterus. Dr. Ramsbotham has collated several cases where this very simple operation terminated fatally; and numerous similar cases are on record. We had a lamentable instance of this in the hospital three or four years ago, in the case of an interesting patient of 22 or 23 years of age, who had always suffered from amenorrhœa and dysmenorrhœa, which we found to be due to occlusion of the vagina from adhesion, producing a septum of no great thickness. Accumulation was still going on, and the division of the thin septum was clearly indicated. This was effected by making a small incision, and the patient remained well for two days; great quantities of the usual dark grumous fluid constantly escaping by the vagina. But on the third day surgical fever set in, and in a few days death supervened. The autopsy showed that the interior of the distended uterus had become the seat of a very intense inflammation, which had spread thence and led to a severe and fatal peritonitis. The important lesson which is very impressively taught us by this case is, that we should be extremely cautious in giving our prognosis as to the result of similar operations. In making the division of the obstructing membrane or tissue in these cases of obstructive amenorrhœa, you may employ either the trocar or knife. The trocar does not always make an opening large enough to allow the retained thick and glutinous fluid to escape by it, and never one of such dimensions as is permanently requisite if the closure is high up in the vagina. You will perform the operation more easily and completely by employing a small tenotomy-knife. The patient may be placed either upon her back or side; and if the closure is above the orifice of the vagina, you must guide the knife entirely by touch, and not by sight. Feel carefully, with the fore-finger of the right hand for the point where, from any sensation of fluctuation or other causes, you judge it best to make the centre of the proposed opening, and hold the finger there; then slip the tenotomy-knife, held in the left hand, up along the fore-finger of the right hand, used as a guide; bring its tip in contact with the point you wish to perforate; and, after pushing it through the intervening septum, move it slightly first to one side and then the other, so as to make an opening through which you can force the finger. Increase subsequently the size of the opening to the dimensions which you wish, by stretching it with the finger or fingers, rather than by any further use of a cutting instrument.

After the incision has been made, two or three courses may be followed with reference to the evacuation of the accumulated fluid. You may press slightly upon the uterus so as to hasten the expulsion of the contents; or your may leave it to the uterus to expel the matter by its own elasticity or by its own more gradual contractile efforts; and perhaps this is the safest and wisest course that in most cases you can follow. Others again try to evacuate and clean out the interior of the womb as rapidly as possible by throwing up injections of tepid water, with the very commendable object of getting rid at once of a fluid prone to decomposition, and liable to become a source of putrid infection to the tissues with which it lies in contact; but in practice you will really find profuse injections of very little use in displacing and washing out the tar-like fluid forming catamenial accumulations.

If the opening which you have made is at the orifice of the vagina, and the obstruction has been produced by imperforation of the hymen, or closure of the os vagina, you will have little or no subsequent difficulty in preventing the reclosure of the perforation. The introduction of the finger, once a-day; or, at most, the maintenance of an oiled plug of lint or sponge in the opening, will suffice for the purpose. But if the closure of the vagina has been the result of deposits and contractions following inflammation and sloughing, you will find it, on the contrary, one of the most difficult indications in obstetric surgery to prevent the re-contraction of the canal; though, by the occasional use of bougies, and tents, if necessary, you will generally succeed in preventing its total and complete reclosure, and the consequent repetition of a state of retention and accumulation of the menstrual fluid. In these cases the measures which we may employ to prevent the recontraction of the canal may be stated under the head of

TREATMENT OF MORBID CONTRACTIONS OF THE VAGINA FROM CICATRICES.

Where the contraction is partial, and consequently does not give rise to amenorrhœa from catamenial retention, you will only require to interfere under the following circumstances—namely, 1. When the stricture is so great, and situated so low down as to interfere with and prevent marital intercourse; and, 2. when, by its presence, at the time of parturition, the progress of the labour is interfered with. In the latter case, if the contractions are such as to prevent the descent of the child's head, you will require to divide the cicatricial tissues, in order to gain adequate space for the passage of the infant. If ever you are compelled to do so, remember the two or three following simple rules:—1. Apply your knife or bistoury to the contractions or cicatrices during a parturient pain, for then the morbid parts are placed fully upon their stretch. 2. Make rather two, three, or more small incisions than one large cut; for the single subsequent tearing and extension of the latter is more dangerous than the multiple tearing and extension of the former. 3. Make your incisions in the sides of the vagina if possible, and not on its anterior or posterior walls, lest they extend into the rectum or urinary passages. 4. Allow always the full extension and enlargement of the contractions to be made in the way of pressure by the child's head, and not by your knife; these tissues, in fact, being far more safely torn than cut. Lastly, let me add, that in most such cases, however extreme, it is possible, by due preparatory incisions and tearings to deliver the child by the long forceps, or by turning, and consequently alive; and that such vaginal contractions form no justifiable excuse for the dreadful alternative of destroying the child, and delivering it by craniotomy.

In cases of severe cicatrices and contractions situated in the course of the vaginal canal, and rendering connubial intercourse painful or impossible, you may try to overcome the difficulty either by the knife or by distension of the contracted part with sponge-tents and bougies, or by both means combined; and indeed both will often enough fail. In the slighter forms, trust for a time to the employment of tents in the first instance, and subsequently to the persevering use of bougies of increasing size, made of caoutchouc, gutta-percha, wood, etc., introduced for a short time every day or every few days; or each worn, when properly fitted, for several days successively, on the principle of solid pessaries. You will render the use of these bougies and pessaries both more easy and more effectual by always introducing into the vagina before them, or along with them, abundance of olive-oil, and simple or medicated ointments. If the contractions are greater, or will not thus yield, first divide them sufficiently, and immediately dilate freely the part by stretching with the fingers. Then try to keep up an adequate degree of dilatation by bougies or pessaries worn continuously for a time, or very perseveringly used at short and frequent intervals. The tendency, however, to the recurrence of the contraction is sometimes so great as to defy both of these measures, even when the dilatation following the division of the stricture has been most thorough and complete. There was a patient in the Hospital, some years ago, in whom pregnancy occurred although a contraction of the vagina existed; and when labour came on, and drew on to a dangerously protracted length, I had at last to make incisions into the constricted part in order to allow of the introduction of the long forceps for the extraction of the child. The stricture was, of course, enormously distended during the process of parturition; yet it afterwards was reproduced, and became again as bad as it was before. You all know that it is one of the most difficult problems in surgery to solve as to the straightening of parts of the skin which have become contracted in consequence of burns; and in obstetric surgery there is no problem more difficult of solution than the mode of overcoming these contractions of the vagina.

Last summer there was a patient in the Hospital, from Shetland, with a very dense cicatricial band greatly contracting the vagina. Mere division of it did not prevent the recurrence of the contraction. In consequence, I cut completely out a portion of the cicatricial tissue, hoping that this proceeding might lead to a better result. But I am sorry to add that this modification of operating proved also quite futile, and the patient went home little or not at all improved. There is a form of contraction of the vagina much more amenable to treatment than the above, and which you will sometimes be consulted about, in consequence of the patient suffering unusually from marital intercourse, or from the completion of that act being impossible. I allude to cases in which there is a mere congenital narrowness or contraction of the circle of the os vaginæ, not from the presence of the hymen, but simply from congenital smallness of the vaginal orifice. Such cases often give rise to extreme unhappiness and distress. How may we remedy them? or what is the proper

TREATMENT OF CONGENITAL CONTRACTIONS OF THE OS VAGINÆ?

There are two plans of procedure—either of which you may follow out. First, you may introduce sponge-tents or bougies of some sort, to be left in the canal, and so to dilate it gradually and perseveringly. If you use large sponge-tents for the purpose, you will sometimes find that they will retain their place better during their expansion, by introducing them with the broad end first. Or, secondly, you may have recourse to an operation, and divide the strictured orifice by making incisions into some part of the circle. I believe the best and easiest operation that you can in such cases adopt is to follow the example set by nature, and make your incision into a part which you sometimes see divided in the process of parturition—to wit, the posterior commissure and the perineum, the parts which first give way when the outlet of the vagina is too narrow to allow of the ready exit of the fœtal head in common first labours. If you begin to make one or more incisions laterally you run great risk of wounding the veins, which are so numerous on both sides of the vulva, and so producing an excessive amount of hemorrhage, or, it may be, as I have seen, a fatal phlebitis. But something must be done to relieve the patient from what is to her a state of the greatest misery; and, I repeat, an incision of sufficient depth may easily, safely, and successfully be made backwards into the perineum. Having dilated the orifice in this way, and having sufficiently stretched it afterwards, if necessary, with the fingers, you must next be careful to take some steps to provide against the immediate closure of the wound, and the recurrence of the contraction. In carrying out this indication you will find that different cases present very different degrees of difficulty. But here a steady and persevering use of tents and bougies is usually followed by complete success. In obstinate cases the patient may require to have introduced into the vagina daily for a considerable time a well-oiled bougie of gutta-percha or caoutchouc. A large wax taper is used by some practitioners for this purpose.

I have known this kind of mechanical dilatation of the vagina followed by a complication which is also the occasional result of other causes, but is not, as far as I know, described in any of our works on female diseases, viz.—

FISSURES OF THE ORIFICE OF THE VAGINA.

This complication consists of a linear, irritable ulcer, fissure, or cleft in the mucous membrane of the os vaginæ. You will find its seat to be generally, if not indeed always, the posterior commissure of the vaginal orifice. You all know of the pain which sometimes accompanies fissures in the anus or orifice of the rectum, and how they have attracted the attention of practised surgeons in consequence of the agony to which they so constantly give rise. When occurring at the root of the nipples, too, these cracks or fissures, as you are well aware, become there also a source of the greatest suffering to mothers, whenever they have to suckle their children.

SYMPTOMS AND DIAGNOSIS.

Fissures of the vagina become a source of pain when the patient is walking or taking any exercise which causes motion of the part. In some cases pain is only felt during defecation or micturition; or when the urine gets into the crack, and irritates the excoriated part. Marital intercourse sometimes becomes very painful, and may even be rendered altogether impossible from the great suffering arising from a source apparently so simple. Examination with the finger in such a case detects the existence of a painful point behind and the posterior aspect of the vaginal orifice; and on looking at the part the eye discovers in the posterior angle a small red linear ulcer, usually, especially when chronic, with rough, slightly elevated and everted edges. If you will only bear in mind the possibility of such a condition occurring, you will hardly fail, when you do meet with such a case, to make out the existence of the fissure.

CAUSES.

Fissure of the vaginal orifice may result, as I have already said, from the mechanical dilatation of this orifice when it has been preternaturally contracted. A chronic ulcer or fissure may persist in such a case in the site of the cut or tear that has been made as a means of cure. But this result is very rare. A far more common cause of this affection is that tearing of the perineum which occurs so frequently to a greater or less extent in first labours. If this tear heals slowly and imperfectly, it is liable to leave the linear form of irritable ulcer which constitutes fissure. I have known of one case of it, which caused great pain and suffering, till it was at last detected and cured, in an unmarried lady; but almost all the patients in whom I have met with the disease were married females, although some of them had never borne any children. The worst instance of the disease I have ever met with was in the case of a lady who came here from England, unable to walk or take any exercise from the pain which all motion caused her. The passing of the urine over the raw surface caused her acute suffering, and her health was giving way under the distress occasioned by a small vaginal fissure, which had endured for a long time, and yet immediately yielded to the simple treatment that was indicated. For

THE TREATMENT OF FISSURE OF THE VAGINA

is very simple. Either you must introduce two or three fingers to dilate the orifice, and tear open the edges of the fissure, so as to convert it into a larger ulcer, which may be healed by the use of cold water or simple lotions, or you must deepen the fissure by dividing the mucous membrane to the depth of an eighth or a fourth of an inch, with a knife, in the same manner as most surgeons are in the habit of treating fissures occurring in the anus.

It is, perhaps, as a general principle in surgery, desirable to avoid the use of the knife, whenever its use is avoidable. And no doubt fissures of the anus are at least as successfully treated by stretching the orifice of the rectum so as to increase and tear open to some extent the fissure, as by dividing the base of the fissure with a knife. Indeed, I have seen more than one case of anal fissure at once relieved and cured by stretching the anal orifice with a couple of fingers, which had not yielded previously to division by the knife, though practised by some of our ablest surgeons. The object is the same whether we use the knife or fingers—viz., the conversion of the chronic ulcer constituting the fissure into a new and simple wound, capable of being cured and closed by the usual treatment of recent wounds. Let me only make one remark more. If you prefer the knife in the treatment of a vaginal fissure, you need not make the required incision of any great depth. The great French surgeon, M. Boyer, supposed that for the cure of a fissure of the anus, it was necessary to make the curative incision pass through the sphincter of the bowel. Many years ago, Mr. Copeland, of London, made that important modification in the operation which is now generally followed by surgeons; namely, he showed that a simple, shallow incision through the base of the ulcer, and to the depth of the mucous and submucous tissues only, was really all that was in general sufficient to secure success.

LECTURE XVI.

ON CARUNCLES OF THE URETHRA—NEUROMATA OF THE VULVA—HYPERÆSTHESIA AND NEURALGIA OF THE VULVA.

GENTLEMEN—At the close of my yesterday's lecture, I showed you a small fleshy excrescence or caruncle which I had removed on the previous day from the urethral orifice of a patient, and I then intimated to you my intention of devoting a portion of this lecture to the consideration of these

URETHRAL CARUNCLES.

Florid red caruncles not unfrequently make their appearance at the external orifice of the female urethra, proving a source of very severe suffering and distress to the patient, and bringing the doctor who procures her relief by detecting their presence and effecting their removal no small degree of credit—credit, unfortunately, which is oftentimes not very enduring, seeing that these morbid growths are extremely liable to become reproduced, and with them all the painful symptoms and sensations of the disappointed sufferer. I show you here some representations of the disease, published by Madame Boivin, which will give you a sufficiently vivid idea of the general appearance presented in such cases. In these plates, however, the caruncles are represented as being of a far larger size than they are in most of the cases that will come under your observation, for though they may vary in size from a millet-seed to a cherry, those of small size are of most frequent occurrence. They vary also in form, and are sometimes seen to be quite round and smooth, at other times they are more irregular and nodose, and sometimes they are flat and spread out like a newt's foot all around the margins of the orifice, where they usually grow from the inner edge. In some cases they are sessile, in others pediculated. Sometimes they are situated more deeply within the canal of the urethra, where they lie concealed from view, and undiscoverable, unless the orifice be by some means dilated. More frequently they protrude, and are at once visible on separation of the labia pudendi. They seem in some cases to be not merely connected with the orifice of the urethra, but to extend to some distance along the canal, a fact which must not be lost sight of when you come to attempt their removal. Such an excrescence, so small in size, may appear to you to be a very insignificant piece of pathology; but in a practical point of view, it comes to be of very considerable importance, for you will often meet with patients whose lives are embittered by it, and who will urgently demand of you to exert your professional skill to effect for them a cure of this very distressing disease.

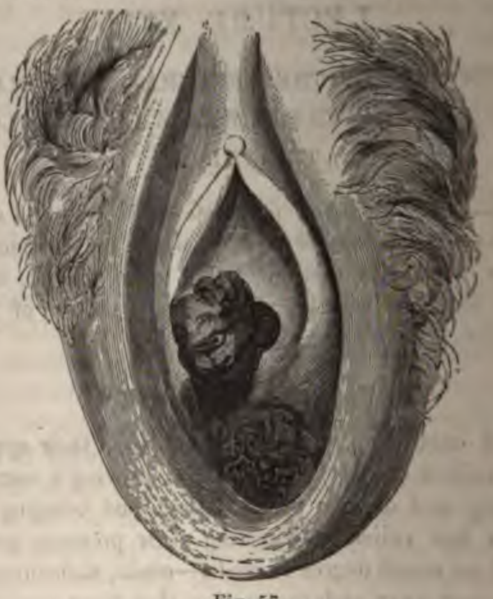


Fig. 57.

SEMEIOLOGY.

What, then, are the symptoms produced by the bodies in question? and how do they come to attract the attention of patients and become a subject of interest for practitioners? First of all they sometimes become a source of intense suffering and pain, and this class includes the majority of cases where your aid will be demanded. In other patients the occurrence of hemorrhage from

Fig. 57. Urethral caruncle (Boivin).

the part, or the occasional admixture of a little blood with the urine, serves to direct attention to their existence. But in a third class of cases they are discovered quite accidentally, producing no special symptom and no degree of suffering, and only attracting your notice by their peculiar appearance when you chance to be making some examination of the vaginal canal. We have at present in the Hospital a patient from Banff, who has been cured of a vesico-vaginal fistula of fourteen years' standing, in whom, as some of you have at different times had an opportunity of observing, there is one of these caruncles, of considerable size, at the orifice of the urethra, which seemed to become enlarged during the period when she had to wear the catheter—probably from the contact and irritation of the instrument; but since she has begun to move about, it is again diminishing in size. In this case the urethral caruncle causes no pain or inconvenience to the patient, who is probably not aware even of its existence. In another patient, on whom I operated successfully for vesico-vaginal fistula about two months ago, there were two such excrescences at the urethral orifice, which were slightly sensitive, and proved a source of pain to the patient when the catheter was used. We tried to make this patient wear the instrument for a day or two before the operation was performed, to accustom her to the use of it; but it caused her too much pain at that time, although after the operation she bore it perfectly well—a result which was no doubt due to the anodyne effect of the large doses of morphia which were constantly administered to her. So, then, there are some of these growths which cause no particular discomfort at all to the patient, while in others they are as painful to the touch as the most sensitive neuroma.

Pathological Anatomy.

It would be a matter of much interest to determine whether there are differences in their anatomical structure corresponding to these differences of their clinical phenomena; but so far as I know they have not yet been very carefully examined. Mr. Quekett found one, which he examined microscopically, to be composed of epithelial cells, and a number of capillaries coming up close to the surface; and this observation explains the occasional tendency to bleeding witnessed in these bodies. We have also a description of the disease, and a figure of the appearances presented by the vessels in a urethral caruncle in the *Pathological Histology* of Wedl, who regards these bodies as "dendritic, papillary, new formations of connective tissue." The one that he examined "was of a somewhat elongated figure, above 0·5″′ in length, and 3·1—3·5″′ in diameter, of a bluish-red colour, and spongy texture, and exhibited, when cut into, cavities containing colloid matter. . . . The most interesting point was the distribution of the blood-vessels, which could be very distinctly traced in transverse sections, moistened with a solution of sugar or of common salt. The ramification of the vessels precisely resembled that witnessed in the *vasa vorticosa*. Several considerable sized vessels entering one of the lobules, divided into a multitude of smaller ones, which, though not of capillary dimensions, made numerous undulating curves, extending up to the periphery of the lobule where they terminated in mostly short and abrupt loops." (See Fig. 58, *aa*.) He goes on to observe that the walls of these vessels were everywhere simple like those of capillaries, and that the red blood-corpuscles were of unusually small size. He found, further, extravasations of blood at several points, both of old and of more recent occurrence. But these observations as to the distribution and character of the blood-vessels, while they afford a very satisfactory explanation of the liability to hemorrhage which the caruncles present, do not in any measure account for the peculiarity of the nervous phenomena. The late Dr. John Reid once examined for me most carefully with the microscope a very sensitive and painful caruncle which I had removed from a patient, and he came to the conclusion that there was a very rich distribution of nervous filaments in it. It is, I believe, a matter of great difficulty to make a satisfactory observation as to the terminal filaments of nerves, but Dr. Reid was a true and faithful observer, and his opinion on a histologic point such as this is of the highest value. And we may yet find that the observation will hold good in all those cases where these bodies are so exquisitely sensitive that they are very richly

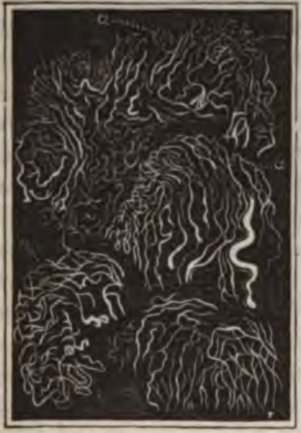


Fig. 58.

Fig. 58. Arrangement of the vessels in a urethral caruncle as seen under the microscope (Wedl).

supplied with nervous filaments. It is, at all events, what we should, *à priori*, expect.

If you inquire further into the history of any of these cases, and question the patient as to the particular form of distress from which she suffers, you will sometimes have curious statements made to you. Thus you will often find,—though this is not so frequently the case now as it formerly was, when the disease had been but seldom noticed, and but few practitioners were prepared to recognise it, you will often still find, I say, that the patient has been consulting a great many different medical men, with the view of obtaining relief from her sufferings, but that no one has been able to discover their source. In some cases the patient suffers pain chiefly at the times when she is micturating, and it may then be most excruciating. I was told by a shepherd's wife, who had one of these sensitive caruncles at the orifice of the urethra, that whenever she was obliged to pass water, she was in the habit of going to some distance away from her cottage, in order that she might moan and scream unheard, and not distress her family with the sound of her cries, so intense and intolerable was the suffering which at such times she experienced. About three years ago we had in the hospital a little girl about the age of puberty, in whom one of the largest caruncles I ever saw was growing from the urethral orifice; it was of the size of a cherry, and seemed to extend along the canal for some distance, and in her case the pain she felt on passing water was so severe, that she used to retain it in the bladder for twelve hours at a time; and she looked forward to the period when the bladder must be emptied with the utmost horror. But the pain is not necessarily felt during micturition, or then only. It is sometimes occasioned at other times. In married women, attention is often first directed to the disease by the pain experienced during marital intercourse. Some patients only suffer when, in walking or taking exercise of any sort, friction of the parts is produced. Occasionally there is reflex or sympathetic pain in some different and distant part. Thus, in one of the first cases I ever saw, the patient not only suffered from pain in the vulva during micturition, but also, then, and at other times, from acute pain in the lower extremities, stretching down even to the heels and soles of the feet. Dr. Whytt speaks of such sympathetic pains in the extremities in connection with calculus of the bladder, and irritation of the urinary organs, and I have traced them, I repeat, several times in connection with these urethral caruncles.

DIAGNOSIS.

To discover the presence of these urethral caruncles, it is not enough that you make a digital examination. By the touch of the finger you can elicit an expression of pain, and so determine the existence of a painful point. You may sometimes feel a small projection there, but the sensation is very deceptive. You can come to no certain conclusion in such a case until you separate the labia pudendi, and examine with the eye, when you will see the bright red caruncle of variable size lying at or in the orifice of the urethra. Sometimes, as I have already observed, it will be sessile, and attached by a broad base; in other cases you will find it attached by an elongated neck or stalk, and resembling a polypus. There may be only one; sometimes there are two or three; occasionally even more, in which case they are mostly small. You will find the orifice of the urethra in different states of dilatation in this affection. Sometimes it is open and dilated, and occasionally the lining membrane of the urethral canal is partially prolapsed through it. More frequently the orifice is short and natural in appearance; and in a few cases it seems small, contracted, and, as it were, in a state of spasm. It always appears to me that urethral caruncles resemble internal hemorrhoids more than any other pathological structure, and that they look, so to speak, like urethral hemorrhoids. They have the same florid red colour, often the same rounded lobular form, and the same tendency to bleeding. They differ from rectal hemorrhoids in being in some cases painful at all times, and not merely, as is the case with the latter, when they are in a state of congestion and inflammation; and in this other feature, that when they are removed with a ligature, with the knife, or with caustics, they show a far greater tendency to return, than is seen in the case of piles. They sometimes give rise to a sort of leucorrhœal discharge, and you will sometimes find a slight degree of suppuration going on around them. I think I have in one or two instances found the sufferings of the patient considerably aggravated by the existence of a slight fissure at their base, resembling those you sometimes meet with at the root of an external pile.

TREATMENT.

Having detected in any particular case the presence of such growths as I have been describing to you, the question arises, what are you to do with them? If the caruncles cause no pain nor inconvenience, and are not particularly sensitive, I should advise you by all means to leave them alone. In those cases, on the other hand, where they are sensitive, and a source of much and frequent suffering to the patient, you should by all means attempt to palliate at least that suffering by the application of local anodynes; and generally you will find it necessary to have recourse to the surgical removal of the painful growths—a proceeding which will in almost all cases afford a temporary relief, and in some effect a permanent cure. This operation, let me warn you, however simple as it may appear, is not always so easy and successful as the descriptions of it, which you will find in books, might led you to suppose. You will read, that if you apply a ligature to the polypoid forms of urethral caruncle, cut off the sessile ones, and apply in some cases alum, nitrate of silver, or some astringent or caustic to the parts, you will be able in most cases to cure your patient. But those who speak thus cannot have had many patients for a lengthened period under their observation; otherwise they would have found the disease recurring far more frequently after such operations than their published accounts indicate. For after simple removal with a ligature or scissors, they almost invariably grow again; and there is one further point about their pathology to which I have forgotten to refer, but which renders it a matter of the greatest difficulty to effect a perfect and permanent cure by removal of the urethral caruncles.

There is often in such cases not merely a prominent red caruncle, or a number of them, lying at the orifice of the urethra; but there are, in addition to these, a number of small very red specks scattered all about the mucous membrane, around the orifice, and upon the neighbouring mucous surfaces, which red specks and patches are not very striking in appearance and may very easily be overlooked, but which are found to be as exquisitely tender as the urethral caruncles themselves when touched with the point of a probe. These insignificant-looking flat red spots are all so many seats and centres of the painful sensation; and if in removing the larger bodies you leave them unheeded, you will never succeed in curing your patient or in affording her permanent relief. From the study of the homological anatomy of the organs of generation in the two sexes, physiologists have come to recognise in the female organs, parts or members corresponding to each of the different constituents of the generative organs of the male with only one very marked exception. Thus we know that the large and well-developed uterus of the female is only the representative or analogue of the small pouch or sinus pocularis in front of the crista galli of the male urethra into which the seminal ducts themselves—the analogues of the Fallopian tubes—enter. So that when in passing a bougie into the male bladder your instrument becomes arrested at this point, as is very frequently the case, you have in reality got entangled in the male os uteri. But there

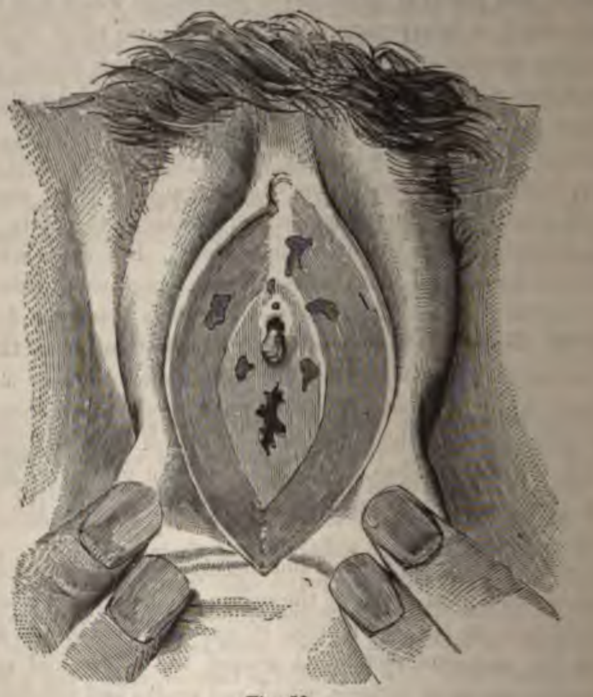


Fig. 59.

is one member of the generative apparatus of the male for which anatomists have not yet been able to determine the existence of a certain analogue in the female; I mean the prostate gland. All anatomy, both human and comparative, leads us, however, to suppose that the female urethra corresponds to that portion of the male which lies in or behind the prostate at the neck of the bladder, and that the prostate gland belongs rather to the urinary than to the generative organs. In this case the analogue in the female of the prostate in the male should be sought for in connection with the urethra or

Fig. 59. A caruncle at the urethral orifice (*a*), and a number of red painful spots in the surrounding mucous membrane.

urinary canal, and not in connection with the uterus, as has most commonly been attempted to be done. Now it may be that in the numerous glandular structures which are scattered about so profusely in the neighbourhood of the orifice of the urethra in the female, we have the representatives of the mass of acini which combine to form the conglomerate prostatic gland of the male; and, if so, it would be a curious subject to determine how far the disease which we are now considering depends upon an enlargement and change in these small scattered follicles, and how far it bears a resemblance to some of the diseases occurring in the prostate. But whatever may be said as to the pathological anatomy of the disease, one thing is certain in regard to it, and that is, that, as a very general rule, no hope of a permanent cure can be entertained except by the radical removal of all the small red spots, as well as of the more prominent and projecting tumours. Different authors have recommended different

METHODS TO BE FOLLOWED FOR THE REMOVAL OF URETHRAL CARUNCLES.

1. *Application of a Ligature.*—As in the case of so many other morbid growths, and encouraged, more especially, by the success which attends the use of the ligature in the removal of internal hemorrhoids, some have proposed to get rid of these urethral caruncles by tying a ligature tightly round their base, and so strangulating and causing them to slough off. But here it could only be applicable to those cases where the growth was stalked or polypoid; and even then it would be a much more tedious and painful process to tie a thread round the neck of the tumour, and leave it there to die and separate, than to have recourse at once to the simpler

2. *Excision with a Knife or Scissors.*—If the ligature may seem to possess some advantage theoretically over cutting instruments in such cases,—inasmuch as there can be no fear in using the former of the hemorrhage which you might suppose likely to attend the latter when applied to such vascular growths—yet in practice you will find that, while the ligature is in most cases very difficult, or indeed impossible of application, the excision of the diseased structures is not attended with any formidable degree of hemorrhage. I never saw a case where it was not very easily controlled. You may use either a knife or a pair of scissors for the excision. It is usually advantageous to draw out first the caruncles with a hook or small

vulsellum, in order to make their removal complete. In operating you must be careful to remove not only the projecting tumours, but also the piece of mucous membrane on which they are seated, as well as any pieces of membrane that may be studded with the red spots of which I have spoken to you. Removal of urethral caruncles in this way, I must again warn you, however, though it does sometimes effect a permanent cure, usually affords only a temporary relief. For a month or two, or even longer, the patient may remain free from pain; but unless some further more potent remedial means be had recourse to, her sufferings are almost certain to return. Along with Dr. Fowler, I saw a few days ago a patient with a painful tumour at the orifice of the urethra, which I removed along with a portion of sound mucous membrane; and this has had the good effect of releasing her in the meantime from the local pain and irritation which have been distressing her. But I greatly fear that you will find, as a general rule, that the reproduction of the caruncle and of all its painful symptoms will take place, unless you make use of some powerful means for destroying the morbid tendency of the part; and I believe that the most hopeful and the most effectual means that you can in such a case employ is the

3. *Application of the Actual Cautery.*—I have tried caustics of many different kinds, for the cure of this intractable disease. But seldom have I found permanent success from the employment of any of these. I had a patient under my care several years ago, with a very painful growth at the orifice of the urethra, which I had frequently attempted to burn down with different kinds of caustics, but it was always reproduced; and when excision was had recourse to the result was no better. I was beginning to despair of ever being able to effect a cure, when at the suggestion of my friend Professor Retzius of Stockholm, who saw the case with me, I destroyed it with the actual cautery; and ever since the patient has remained perfectly well. Since that time I have used it frequently, and, in many cases, with the happiest result. Yet I must confess to you, that this means too, has in some instances failed to effect a permanent cure. In order to apply the actual cautery to destroy a caruncle or caruncles of the urethra—1. you may use either an iron of proper size and shape adequately heated; or, 2, you may apply the requisite degree of heat through the galvano-caustic wire. The latter method is specially useful when the caruncles extend up the urethra higher than the orifice,—because you can introduce and apply the wire before heating it up by the transmission of the galvanic current. App

immediately afterwards cold water and cloths soaked in it; and subsequently treat the ulcerated surface, after the slough separates, with very frequent applications of black wash, zinc lotion, or other surgical applications. The position, therefore, in which we at present stand with regard to the treatment of these urethral caruncles, is such, that their excision with the knife or scissors, and their removal by means of caustics, are to be looked upon and employed as measures for affording usually a temporary relief only; while their destruction by means of the red-hot iron, or the galvano-caustic wire, affords a reasonable prospect of a permanent cure, although even by this more heroic treatment we cannot be absolutely certain in every case that we free the patient from her disease for ever.

Palliative Treatment.

I have one word more to add with respect to the treatment of this painful affection before I have done with it, and it is this:—In those cases where all radical measures have proved ineffectual for relieving your patient, or where the caruncles are in such a situation as not to admit of their removal, you will require to administer sedatives of various kinds internally, or, what is better still, to apply some local anodyne. The best local remedy that I know of for this purpose is prussic acid, applied in the form of an ointment made up of two drachms of the dilute hydrocyanic acid of the Pharmacopœia to the ounce of lard. A bit of this ointment about the size of a pea applied to the part three or four times a-day, often relieves the pain more effectually than any quantity of opium administered internally, or than any other form of local anodyne which I have used. Aconite and chloroform ointments sometimes also form good palliatives. So does tepid water. You will add, sometimes very greatly, to the comfort of your patient, by advising her to sit in a warm hip-bath during micturition.

NEUROMATA OF THE VULVA.

I have alluded to the existence of sensitive points and structures external to the orifice of the urethra, and have spoken of them as closely allied to, or identical with, the caruncles at the opening of the urethra. There is a diversity of opinion in regard to them, some regarding them as partaking of the nature of true neuromata. It may be that there are two different kinds of them—one more vascular and glandular, the other more nervous and papillary. However this may be, I have found true small nodular neuromata occurring under and beneath the mucous membrane here, such as are found subcutaneously in other parts of the body; and as in the case of the urethral caruncles, our only hope of curing them is by the most complete and radical removal that we can by any means effect.

Hyperæsthesia and Neuralgia of the Vulva.

There is one other morbid condition of the female genital organs regarding which you must allow me to say a word or two during the few minutes we have still at our disposal. It is observed chiefly in married women, who come to you complaining that contact with a certain point in the sides of the vaginal orifice or vulva causes them such acute suffering that they are totally unable to endure any attempt at marital intercourse. This pain seems to be due to a state of hyperæsthesia of the pudic nerve, and was first described by Dr. Burns, of Glasgow, who, in his *Principles of Midwifery*, after describing the anatomical distribution and relations of the nerve, goes on to say that it "is often preternaturally sensible, so as to cause great pain *in coitu*, as well as at other times. It may be exposed by cutting through the skin and fascia, at the side of the labium and perineum; beginning on a line with the front of the vaginal orifice, and carrying the incision back for two inches. The nerve being blended with cellular substance is not easily seen in such an operation; but it may be divided by turning the blade of the knife and cutting through the vagina to its inner coat, but not injuring that. It may be more easily divided by cutting from the vagina. Slitting, merely, the orifice of the vagina will not do; we must carry the incision fully half-an-inch up from the orifice, and also divide the mucous membrane freely in a lateral direction" (p. 45). I formerly knew one or two patients who had consulted Dr. Burns in regard to this affection, and in whom the pudic nerve had been divided in the manner he describes, either by himself or by his son; yet in these patients the painful sensation returned, though sometimes not in the same place, but in the track of some other nerve. I believe, with Dr. Burns, that the best palliative treatment for such cases is division of the affected nerve; but, instead of laying it bare, I have usually cut it through subcutaneously, by means of an ordinary tenotomy-knife. It is a surgical measure far more simple in its character. Occasionally there is greater supersensitiveness and neuralgia of the vulva and vaginal orifice, without there existing any local lesion whatever capable of accounting for it. The pain is not then usually limited to any one single point. Such cases require the usual constitutional treatment of neuralgia, as iron, manganese, arsenic, etc., sometimes in long-continued courses. You have to use general anti-neuralgic tonic medicines and measures; and locally all forms of sedatives and anodyne applications.

LECTURE XVII.

ON ABSCESS OF THE LABIA PUDENDI, AND THE VARIOU FORMS OF VULVITIS.

GENTLEMEN—Here is a small quantity of purulent fluid measuri in all about one ounce, which I removed the other day from the l labium of a poor patient who was sent from Fife. She labour under the impression that she had got an inguinal hernia, but examining the part I found the swelling of the labium to be due a collection of fluid underneath the skin. As the patient seeme never to have experienced any particular degree of pain in the par and as on cross-examining the woman there was nothing to lead on to suppose that it had ever been the seat of any acute inflammator process, I concluded that it was a collection of serous fluid in a cysti cavity. Let me observe, as I pass, that we may have two forms o serous collections in the labium—viz. 1. A collection in the process o Nuck, a disease exactly corresponding to hydrocele in the male; or 2. A collection of it in a simple serous cyst; such cysts being sometimes found in the submucous tissue of both the vulva and vagina. Supposing the swelling to be of the latter kind in the patient I speak of, I proceeded to cure her of the deformity, and relieve her from the inconvenience produced by the presence of the fluid, by letting it out with a tenotomy-knife, when there escaped not the usual clear fluid of a cystic growth, but the greyish-yellow purulent fluid which you see in this bottle. It was thus shown to be an instance not of cystic development in the part, but of a disease not at all uncommon here—I mean,

ABSCESS OF THE LABIA PUDENDI.

1. *Pathological Anatomy.*—There is, as you are aware, a conglomerate gland seated in the submucous tissue, on either side of the entrance to the vagina, opening on the inner surface by a small straight duct, and resembling in structure and situation the Cowper's glands of the male. They were first particularly described and de-

monstrated by Bartholini, whose name they bear; but perhaps the best account we yet possess, both of their normal and pathological anatomy, is that given by Huguier in the *Memoirs of the French Academy*. These Bartholinian glands are liable to take on from time to time an inflammatory action, which may pass on to the higher stages, and end in the formation of an abscess in the labium. But phlegmonous inflammations and abscesses of the labium are not necessarily limited to the substance of the gland, and the abscesses which form here do not always arise in the gland itself; but the inflammation may begin in the proper cellular tissue of the labium, which may be the seat of the suppurative process. Usually, such an abscess is limited to one labium only, but often enough it occurs simultaneously in both. You will in most cases be able to detect a depression on the surface of the abscess, corresponding to the orifice of the small excretory duct. You can sometimes see the orifice of the gland blocked up, with a drop of pus shutting it up.

2. *Aetiology.*—You will in most cases find considerable difficulty in discovering any special cause to which these inflammatory and suppurative changes can be distinctly assigned. But I have met with several instances where patients were subject to inflammatory attacks in these glands, coming on like the sore throats to which many are liable, with the various changes of the weather. As in the instance of the chronically inflamed tonsils, these glands may in some cases become merely enlarged and painful, or in others they may at such times become the seat of a more or less copious puriform discharge. Not unfrequently phlegmonous abscesses in the labia are the results of direct injury.

3. *Symptoms and Diagnosis.*—If the patient apply to you early, while the inflammation is still recent, and the changes not very advanced, you will find the inflamed gland hard and enlarged—often to the size of a hazel-nut. But usually the primary stages have been passed ere your aid is sought for, and in most cases you will find the tumour already soft and fluctuating from the formation of pus. In the case from Fife, of which I have told you, the abscess had existed for many months, and all trace of inflammatory action had so completely disappeared, that I imagined it to be, as I have said, a simple cyst. Sometimes the labium in which the pus has thus been collected becomes distended and deformed, forming a large protuberance towards the perineum, and overlapping to a considerable extent the labium of the opposite side. If in any case you should be in doubt as to the nature of the collection, you may soon come to a decision

by introducing an exploring needle into it, and bringing away some of the fluid. The swelling may give to the labium an appearance as if it contained a hernial loop of intestine; but the freedom from swelling of the inguinal canal and upper part of the labium, the absence from the tumour of all impulse on coughing, etc., will enable you to decide as to the nature of the case.

4. *Treatment.*—If you meet with a case early, while the changes are not yet far advanced, you may be able, by the ordinary antiphlogistic and discutient remedies, to arrest the inflammation and counteract its effects. But when it has already advanced to a certain stage, this is beyond your power; and it then becomes your duty to hasten the formation of the pus, and to effect a speedy cure by puncturing the abscess. There are two different methods which you may follow in evacuating the fluid. You may open up the duct with a fine probe, and suffer the fluid to escape along it. But this canal is usually so small that the dilatation of it is a matter of the greatest difficulty. Besides, when the pus is found around the gland, dilatation of the excretory duct will not be sufficient to evacuate it; and even when the fluid does escape from it at first, it has a tendency again to close up and lead to a re-accumulation. I should advise you rather to open the abscess with a bistoury, and to open it very freely on the vulvar or mucous, not the cutaneous surface. After apparently the freest opening, there is, in fact, only a very small wound left when the parts collapse. Besides, if you take care to make the opening large enough to let out all the pus, you will, in all likelihood, have no farther trouble with the case. If you make the opening too small, or if you allow nature to evacuate it by a small spontaneous opening, you run the risk of finding a fistula forming in the vulva, just as you may have fistula in ano produced in a similar manner. This fistula in vulva may have its internal opening pretty high up, and if not detected and cared for in time, it may come to burrow in the cellular tissue of the labium, and lead to the formation there of sinuses which it becomes very difficult for you finally to heal up. Such a condition having by some chance been established, it becomes a matter of much importance for you to determine what is the best method you can adopt for the

TREATMENT OF FISTULA IN VULVA.

There is one very simple means which is usually very effectual in curing fistula here as well as fistulæ and sinuses in other parts, and that is, the injection of strong tincture of iodine. Tincture of iodine injected into the canal of an anal fistula will sometimes cause contraction and consolidation in its track, and effect a perfect cure. I have seen some severe cases of fistula in ano cured by this simple means. One case in particular occurs to my mind at this moment, where the effect of the injection was most striking. The patient came to me some three years ago or more from Ireland, with a fistula in ano of very long standing. Before setting out for Edinburgh this patient had been foolishly told that an operation would be undertaken which was almost certain to prove fatal, so that I was at once and most earnestly asked if there was no other way of curing this fistula but by cutting it. I directed Dr. Skinner, who was my assistant at the time, to inject some tincture of iodine into it; but the injection was not attended on that occasion with any very marked result, because in all probability the fluid had not passed along the whole fistulous track. The next time, the injection was performed more effectually, as was proved by the escape of some of the fluid from the internal or rectal orifice of the fistula; and this injection was speedily followed by a most complete and perfect cure. If in any case you cannot succeed in making a fistula in the vulva close up by sending a stream of tincture of iodine through it, you may try to effect a cure, as I have once or twice succeeded in doing, by leaving a wire for a time in its track, until such a degree of adhesive inflammation is set up as shall lead to its complete obliteration. Should this means also unhappily fail, then it only remains for you to cut through with a knife all the tissues between the two extremities of the fistula, and induce the wound thus made to heal up from the bottom by granulation. But, remember, there is always much danger of profuse venous hemorrhage in this operation, and you must be duly prepared for it.

As I am speaking of inflammatory diseases of the external parts, and their results, let me add, that these parts are liable to various other types of inflammation besides the simple inflammatory or phlegmonous, of which we have been speaking, and also quite independently of any syphilitic origin. Various forms of eruptive inflammation are liable to appear in this part of the body, and particularly in some females at the menstrual period, and in others in consequence of the acridity of the discharges which may pass from the vagina at other times, and under states of internal disease. Thus, these parts are the occasional seat of attacks of erythema, eczema, etc. Herpes occasionally appears, generally after some constitutional disorder, on the external labia or vulva, of the same form and running the same course as herpes labialis, or rather, as herpes preputialis in the male. I have seen also very distinct herpes upon the cervix uteri. Various other forms of acute and chronic inflammatory eruption may appear in these parts, but they require no special notice, as they require no treatment specially different from the same diseases when situated elsewhere. One of the most common varieties of eruption on the vulva consists of an affection like acne, *i.e.* it consists of scattered tubercules, sometimes of considerable size, formed by inflammation of the follicles of the vulva and nymphæ. But there are some forms of specific inflammation, if we may so call them, of the vulva, some varieties of vulvitis, if we may so speak, which call more particularly for our notice, such as papillary vulvitis, purulent vulvitis (which is liable to occur in infants), gangrenous vulvitis, or noma, etc.

PAPILLARY VULVITIS.

This is a form of chronic inflammatory disease of the vulva which is fortunately not very frequently met with in practice. But when it does occur, it is usually accompanied with much distress and is often very obstinate in the way of cure. By this term, papillary vulvitis, I mean a chronic inflammatory affection of the mucous membrane of the vulva, and sometimes of the vagina, in which the membrane presents an intensely red colour, either in raised red patches on the edges of the lower vagina folds, on the tips of the carunculæ myrtiformes, or the nymphæ, or on the sides of the vulva or more generally diffused over a large portion of the surface of the vulva. On these red patches or surfaces you find, on examination, the enlarged mucous papillæ standing out like the swollen villi of a raw and irritable tongue. Often some of the most elongated papillæ bleed at their tip when touched. Any rough pressure of the vulva gives pain to the patient. The disease may be found in the unmarried, but not frequently; it comes on after marriage, and produces such tenderness of the parts that sexual connection is attended with much suffering, or becomes impossible. Usually indeed, there is a sort of spasmodic contraction of the orifice of the vagina aggravating the evil. Along with the red and enlarged papillæ you will sometimes, but not always, find interspersed the small follicular glands of the vulva, swollen and inflamed, and sometimes ulcerated.

Treatment.—Patients affected with this disease anxiously demand professional relief, as their happiness as well as their health is sometimes destroyed by it, and the treatment, as I have already hinted, is sometimes by no means easy. I have known the diseased surface treated heroically and perseveringly with a repetition of strong caustics; but the simplest and surest mode of cure, according to my experience, consists in the continued use of local astringent measures, combined when necessary with sedatives, such as a strong solution or liniment of tannin frequently applied during the day, and with morphia or other sedatives added to it. Or you may dissolve your astringent in glycerine, and in this form it will remain more permanently in contact with the diseased surface. Latterly, I have trusted principally to the daily free application of a saturated solution of perchloride of iron in glycerine—an application producing little or indeed no pain—and I think with the happiest effects. General tonics, warm bathing, etc., must not at the same time be forgotten.

PURULENT VULVITIS, OR LEUCORRHŒA IN INFANTS.

This is a form of inflammation of the vulva which is by no means infrequent in female infants and children. It is, perhaps, however, more interesting and important in its medical jurisprudence relations than in its purely practical aspect; for very often, especially when it occurs in patients of the lower orders, the disease is improperly imagined, by the relatives and friends of those attacked, to be the result of venereal infection. The child is brought to the medical practitioner, under the idea that he will confirm this unhappy and dangerous notion. An excitable mother will, by threats and by suggestive and leading questions, get the frightened child to own to some absurd and groundless tale, in confirmation of her maternal theory of the origin of the malady; and no doubt men have been repeatedly tried, and convicted too, of imparting this disease to young children, by forced sexual connection, when they were totally innocent of such a crime, and when the affection had totally a different origin; for the purulent vulvitis, or leucorrhœa seen in young female children has, as a general rule, no more an impure sexual origin than has inflammation of the eyes, throat, or lungs. Like most other local inflammations, it usually arises first from some degree of deranged or impaired general health in the patient, and secondly from the patient, when in this, it may be quite temporarily, depressed condition, being exposed to cold and wet, or the other exciting causes of inflammation. Want of cleanliness, the irritation of acrid urine,

the ext
course
I hav
other
in th
tre
el
v
t

es
es
rs.
But y
lways
the a
more
of a th
llow, or
es extre
g the ou
ges slight
when the
a is found
secretion.
the vaginal o
n appearance
type of muc
as a commo
unity of sear
Sometimes, but
two spots of ulce

ntile leucorrhœa
ral tendency to
course, and has a
But, if not arreste
of discharge ; and
prevent this termin
immediate distress an

of the affection you wil
constitutional treatm
a few grains of s

magnesia, is sometimes all that is necessary; but it may require to be repeated. If the discharge become protracted, chalybeates or other tonics may become necessary. Use, in short, your constitutional remedies here as elsewhere, to bring the constitution and its principal functions as far as possible to the normal standard of health, and cure the local disease by appropriate local applications.

In the earlier and more inflammatory periods of the disease, use locally to the vulva sedative applications; in the latter periods, and for the purpose of reducing and arresting the attendant discharge, use astringent applications. And you may employ these local applications in the form of lotions, or liniments, or ointments.

Frequent ablution with warm water, or warm milk and water, is one of the best and most soothing local applications; and sitting in a warm hip-bath during micturition is one of the surest means of relieving the pain and scalding attendant on the passage of the urine. A solution of acetate of lead, or two grains of acetate of lead and one grain of acetate of morphia to the ounce of water, makes a good sedative lotion where there is much local smarting and pain; or you may use a weak solution of borax, or of nitrate of silver. When sedative lotions are preferred, it is generally necessary to leave a slip of charpie or lint wetted with them between the labia.

But I think you will find the local affection more manageable under sedative liniments; as by applying several times a-day with a brush or feather, cold cream, with, if you think fit, a little morphia added to it; or a liniment made of equal parts of olive oil and lime-water. Liniments are more lasting as local applications than lotions; and not so liable as ointments to fret or irritate.

But the time soon arrives when you must add local astringent remedies to the sedative; or substitute the former entirely for the latter. With this view, use tannin, or sulphate of zinc, or aluminated iron, or any analogous astringent, in the form of a lotion or liniment; but take care not to use them of such strength that they prove irritant in their action, so as to force you back again, for a day or two, to the sedative treatment.

Gangrenous Vulvitis or Noma.

A variety of vulvitis is seen sometimes, but fortunately very rarely, in practice, which generally begins with erythematous inflammation of the vulva, and the formation of one or two blisters or bullæ, and rapidly runs on into gangrene and phagedæna. This gangrenous vulvitis has been seen in adults as a complication in particular epidemics of puerperal fever; and in infants it has been observed either under an epidemic form, like epidemic gangrenous or malignant sore-throat; or in isolated cases—most frequently as a sequela of scarlatina, measles, and other debilitating forms of febrile disease—or as a result of some constitutional cachexia. The disease not unfrequently runs on to a fatal termination.

Treatment.—You will generally find your patient requiring early, or even from the first, stimulants and quinine. If these are not yet called for, trust to considerable doses of chlorate of potass; or of this and muriate of iron every two or three hours. Apply poultices and sedatives locally, in the early stages of the disease at least. The progress of the gangrene has, it is said, been sometimes arrested, or appeared to be arrested, by the application of nitric acid.

PRURIGENOUS VULVITIS.

Not unfrequently a prurigenous eruption appears on the mucous membrane of the vulva, and extends up along the vagina as far as the cervix uteri. It extends also often, and is sometimes, indeed, originally situated on the cutaneous border of the vulva, and appears on the outer cutaneous surface of the labium, spreading backwards along the perineum to the circle of the anus. Occasionally, it is a flitting and transient affection, recurring with menstruation, pregnancy, or delivery. But patients will apply to you from time to time, in whom the disease has become more chronic and fixed, having lasted for weeks, or months, or even years; producing almost constant irritation and distress; frequently interfering with rest and sleep, and rendering the victims of it miserable and almost deranged. When the disease has become somewhat chronic, and necessitates the patient to attempt to alleviate it by constant and sometimes rough friction, you will find the mucous and even the cutaneous surface at the most irritated parts white and thickened, with red fissures, and scratches appearing on the affected part. I have spoken of the disease as fundamentally prurigenous; and we can often see on the affected surface a small papular, and sometimes a vesicular, or even aphthous eruption; but cases ever and anon occur, of severe pruritus in these parts, without your being able to trace in them any distinct eruptive appearance.

Treatment.—Prurigenous disease of the vulva or neighbourhood can be relieved, and generally cured, by the assiduous and persevering application of a solution of biborate of soda (five or ten grains to the ounce of water), infusion of tobacco, either alone or containing a similar quantity of borax dissolved in it, or an ointment of iodide of lead (one drachm to the ounce), or an ointment of bismuth and morphia. Chloroform also applied locally, in the form of vapour, liniment, or ointment, forms one of the most certain means which you can use. The simplest way of employing it is by adding a drachm of chloroform to an ounce of any common or sedative ointment or liniment. I have seen patients greatly relieved by the use in the same way of chloro-carbon, and still more of hydrocyanic acid. You will find great advantage in the management of the disease in alternating some of these local applications with each other, for most of them begin to lose their good effects when persevered in above a few days consecutively. In the more obstinate and severe cases, strong astringents are sometimes of the greatest use, employed either alone or along with sedatives, as a very strong solution or ointment of alum or aluminated iron or tannin; or the powder of these substances mixed up with some powdered morphia, and applied continuously for a few days to the irritated part. Nitrate of silver, either solid or in solution, has sometimes afforded temporary relief. Several times, in very obstinate cases, and where the disease was limited to a portion or circle of the cutaneous tissue, I have temporarily separated the affected portion of skin by a free subcutaneous incision with a tenotomy-knife. Of course it leaves no wound except the small wound left by the entrance of the knife itself. I have found this little operation perfectly and entirely successful in some cases, and only of temporary benefit in others.

Perhaps it is unnecessary to add that the general health of the patient must be fully attended to, and that sometimes arsenic, aqua potassæ, and other alterative medicines of that description are required.

LECTURE XVIII.

ON SURGICAL FEVER.

GENTLEMEN—Two weeks ago I directed your attention to the subject of complete contraction of the vagina (see p. 256) as a cause of retention of the menstrual secretion, and of its accumulation in the cavity of the uterus. I did so in relation to a case of that kind at the time in the Hospital; and I revert to the subject to-day for the purpose of acquainting you with the further hapless history of the patient, and with the view of calling your attention to some of the other lessons taught us by her melancholy fate.

From the account of the case which I formerly gave you, you are already aware that we had opened up the adhesions in the vaginal canal to some extent with the finger, and that this apparently simple procedure had been followed by some slight but distinct febrile symptoms. These symptoms, however, subsided after a day or two, and when they had finally and fully disappeared, we proceeded to relieve the uterus of its long-accumulating contents, by making a small opening into the dilated uterus at its most dependent and most yielding point with a tenotomy-knife. I told you that puncturing of the uterus through the vagina, in such cases, was an operation by no means free from danger, but by having recourse to it in this instance we gave to a young and interesting female her only chance of relief from a diseased condition which was surely, though slowly, tending to her destruction. I punctured the uterus through the roof of the vagina, and there escaped about twelve ounces of the dark tarry viscid fluid, of which I showed you a specimen two days subsequently. The patient remained well for thirty-six or forty hours afterwards, but then a rigor occurred, and fever set in with all its fatal consequences. The pulse rose and became very rapid, the abdomen became tympanitic and very tender to the touch, an anxious expression overspread the patient's countenance, an icteric tint became developed over all the body, and, in spite of our utmost care, she sank, and died on the fifth day from the time of the operation.

On making a post-mortem examination, the uterus, which I here show you, was found to be enlarged and about the size of a uterus in the third or fourth week after parturition; its internal surface dark and sloughy, and its walls thickened and in a state of fatty degeneration. There was a great collection of pus and inflammatory exudations all around it, and in the cavity of the abdomen as well, gluing together the different viscera, and covering the surface of the liver, more especially, with a regular layer of coagulable lymph. The left Fallopian tube was curiously twisted back upon itself, and its fimbriated extremity was folded inwards, and glued like a cap on the fundus of the uterus in the remarkable manner which you can still see in the preparation. On being cut into, this Fallopian tube was found to be filled and distended with a quantity of dark tarry-looking fluid, precisely resembling that which had been found in the uterus. The artificial opening into the uterus was found to have been made in the cervix, immediately in front of the os uteri, which was quite occluded; and the canal of the cervix was also obliterated to some extent. No secondary or metastatic changes were found in any distant organs or viscera.

Another fatal case has occurred in our ward during the last week. The patient was an elderly woman whom some of you had an opportunity of seeing me tap for dropsy of the ovary two weeks ago. According to all appearance the patient ought to have got on quite well, for there was only this one bad feature about the operation, that we could not get the cyst completely emptied in consequence of the canula getting always obstructed towards the end by means of flakes of a substance which looked like decolorised coagula of old blood, but which were in reality, for the most part, composed of the débris of the septa between the different cysts; and which cysts had amalgamated to form the one large cavity into which the trocar and canula were thrust. The fluid that escaped was dark in colour and very viscid, and contained a considerable admixture of blood-corpuscles. The patient did well for two or three days, but then she began to have shiverings and vomiting, with quickened pulse and tenderness of the abdomen. These febrile phenomena lasted for a few days, and then began gradually to subside. A day or two later, however, the abdomen began to swell, and become tympanitic, evidently from the development of gas within the cavity of the cyst; and then the fatal fever and inflammation returned, marked principally by vomiting and acceleration of the pulse, and attended apparently by no degree of pain or local tenderness whatever. Finally, she died, as most patients carried off by severe peritonitis and ovaritis do die, of a form of slow fainting or sinking, which no kind and no quantity of tonics and stimulants served in any marked degree to restrain or arrest.

At the autopsy, we found the ovarian tumour to be adherent to the walls of the abdomen in all its extent; so that Dr. Haldane, in cutting through the abdominal parietes, opened into the sac at once. Yet it was not so firmly adherent but that it could readily be separated with the fingers, and might probably have been removed had the operation of ovariotomy been here attempted during life without encountering any risk of hemorrhage. Only at one point the sac was joined to the mesentery by an old adhesion, which contained one or two blood-vessels; but even from these no formidable bleeding could have occurred. I do not myself venture to touch this preparation, in demonstrating it to you now, because I firmly believe that if I did so, my fingers might become impregnated with a poison which, when applied by chance to some puerperal patient, would almost certainly have the effect of inducing in that patient an attack of puerperal fever. For, as I shall endeavour to prove to you, when in another department of our course I come to treat of this disease, surgical and puerperal fever are identical in nature and intercommunicable. On the interior of this large cyst you see a number of smaller cysts projecting into the cavity, and towards the base of the tumour there is likewise an agglomeration of cysts of every possible size, from this secondary one of the bigness of a child's head downwards. Altogether it gives you a very good idea of the appearance usually seen in such tumours, and you can see from this how one large cyst is sometimes formed from the dissolution and fusion of a vast number of smaller ones. There was a large quantity of purulent fluid inside the cyst, as well as some noxious gas; and you can still see on the interior large flakes of lymphy deposit. There was no remarkable degree of peritonitis, and no morbid change of recent date in any of the abdominal or thoracic viscera. Most of the lymphatic glands in the abdomen had been destroyed by some morbid and probably tubercular change of ancient date, and were represented in most cases by cysts containing only a cheesy or putty-like mass.

These two cases present you with very striking examples of operations, apparently of the most safe and simple nature, failing and ending fatally; and I need, therefore, to make no apology for occupying your time to-day with the discussion of the question, What do patients die of after undergoing surgical operations, either in the course of general or obstetric surgery?

CAUSES OF DEATH AFTER SURGICAL OPERATIONS AND INJURIES.

In entering upon this discussion, I would take leave, first of all, to observe, that the inquiry as to what patients die of after surgical operations, is a question which has not hitherto attracted that degree of attention from surgeons themselves which its paramount importance imperatively demands. In vindication of the members of my own department of the profession, I would remind you that there is not a text-book on Midwifery in which there is not one lengthy chapter devoted to the consideration of puerperal fever, the common cause of death in obstetrical patients; and there are besides many monographs and bulky treatises in which it is discussed fully and in all its bearings. On the other hand, there is hardly a large work on Surgery in which you will find a word stated as to the cause of the mortality of patients who have been subjected to surgical operations. We have one large standard German work on surgery translated into English, which is very complete and exhaustive on most surgical topics; but on looking at it this morning to see what the author or translator had to say about the causes of deaths after operations, I found not a word on the subject; and in one of the most recent and perhaps the best English work on surgery—a bulky tome of some thousand or more pages in length—this all-important question is dismissed in the short space of one half-page. In other text-books and systems of surgery we have not even so much as this half-page. Faithful to their designation and their original vocation, chirurgeons have, with some great and brilliant exceptions, gone on trying to improve the merely manual part of their profession—what some have spoken of as the cutlery and carpentry of surgery only, without attending sufficiently to some of its most important pathological relations; and especially without showing any anxiety to inquire as to the pathological effects of their operative procedures upon the bodies of their patients. Indeed, some surgeons seem to lose all interest in their patients from the time that they are carried off the operating-table, and eschew rather than otherwise their treatment, if they are attacked with surgical fever. Our books and manuals devoted to operative surgery elaborately describe various and sometimes many modes and methods, by which almost every individual operation may be performed, and they learnedly discuss the site, length, depth, shape, form, etc., of the incisions required, while they seem all agreed to leave unheeded and uninvestigated the fact that patients die in startling numbers after every operation, and after each and every form and variety of incision, of whatever length and depth, and however and wherever made. This notorious neglect on the part of our surgical brethren is all the more provoking, because they are, forsooth, continually boasting that surgery is that department of the profession which has attained the highest state of advancement and perfection, forgetting, all the while, that it is only the mere handicraft part of it that has been brought to this boasted degree of development. Irritated by this arrogant assumption, Dr. James Gregory, formerly professor of the practice of physic in this University, and a man who spared neither friend nor foe in the caustic utterance of his satirical sentences, once wrote as follows. To understand, however, Dr. Gregory's observations, let me premise, that in his time, two eminent surgical writers practised in Edinburgh, each of them the author of large treatises on surgery, viz. Mr. Benjamin Bell and Mr. John Bell; and between them there existed the rivalry of opinion and doctrine so common among contemporaneous surgeons. "Within my memory," writes Dr. Gregory, "a new mode of cutting off legs was introduced (or an old one revived, I am uncertain which), and strongly recommended by an eminent surgeon, Mr. Alanson. It was called the flap operation, or cutting with flaps. I remember to have heard some disputes about it; for as there were flappers, of course there must have been anti-flappers; and as the dispute began little more than twenty years ago, far from being ended as yet, it can scarce be arrived at full maturity and violence. Mr. Benjamin Bell must be either a flapper or an anti-flapper; and I humbly conjecture (for I do not know the fact) that if he is a flapper Mr. John Bell will be a determined anti-flapper; but that if Benjamin is an anti-flapper, John will be a most strenuous flapper. But, flap or no flap, he certainly may take his choice of several ways of cutting off a leg." Nearly thirty years have come and gone since these words were penned, and still surgeons continue, I believe, to wrangle as idly and bitterly as before, about how a limb may be best lopped off, and still very strangely forget to ask themselves why it is that so many of their patients die after every possible form and fashion of dismemberment, and how this mortality may possibly be met and diminished.

That surgical operations taken as a whole, and particularly the more severe forms of these operations, are frequently followed by the deaths of the patients who are subjected to them, is easily enough proved by the statistical tables published by some of our large hospitals. I have brought with me two of these sets of tables, the only two on which I could lay my hands this morning. In the official "Report of Guy's Hospital," for the year 1856, there is a table of the consequences of 329 operations of all kinds, from which we find that of these 329 patients, 43 died, or one in every seven and a half. In the "Report" of our own Infirmary, for the year 1842-43, drawn up by Dr. Peacock, the results of 150 operations of every kind are tabulated, and this table shows a mortality of one in every five. In the "Report" for 1849-50, drawn up by Mr. McDougal, the proportion of deaths is greatly less, amounting only to one in every ten and a half. This is to be explained partly by the circumstance that there are included in this table the results of a large proportion of slight and comparatively safe operations, such as that for fistula in ano; but the lessened amount of mortality in the later period, is, doubtless, also in part due to the circumstance that during that time all the patients, almost without exception, were first brought into a state of anæsthesia by means of chloroform. If now you look to the result of some of the larger operations, you will find the amount of mortality to be much greater. This is shown, for example, in the following table, the materials for which I collected and published some ten years ago:—

TABLE OF THE MORTALITY OF AMPUTATION OF THE THIGH.

Name of Hospital and Reporter.	Number of Cases.	Number of Deaths.	Percentage of Deaths.
Parisian Hospitals—Malgaigne .	201	126	62 in 100
Edinburgh Hospital—Peacock .	43	21	49 in 100
General Collection—Phillips .	987	435	44 in 100
Glasgow Hospital—Lawrie . .	127	46	36 in 100
British Hospitals—Simpson . .	284	107	38 in 100

Thus you see that in Paris, where amputation of the thigh was performed, no doubt, in the most approved and artistic manner, and with all the aids of the most perfect handicraftism, more than one-half of the patients subjected to that operation died; while, in other hospitals patients died after the same operation in a less, but still a very high proportion, the general result being, that nearly 1 in every 2 patients operated on died. And from other operations you have a corresponding high degree of mortality, as shown by this

TABLE OF THE MORTALITY OF LIGATURE OF ARTERIES AND HERNIOTOMY.

Operation.	Reporter.	Number of Cases.	Number of Deaths.	Percenta of Dea
Ligature of arteries . .	Phillips.	171	57	33 in 1
Ligature of arteries .	Inman.	199	66	34 in
Ligature of subclavian artery	Inman.	40	18	45 in
Herniotomy . . .	Inman.	545	260	47 in 1
Herniotomy . . .	Cooper.	77	36	45 in

These tables will suffice to show you that the mortality aft severer kinds of surgical operations is something frightful and e mous. At the same time, confessedly, the chances of a fatal after even the slightest operations are by no means few. An question comes to be, What do these patients die of?

First of all, let us inquire, do they die of purely surgical co cations? In a few cases they do, but not in many. In G Hospital *Reports* for 1843, Dr. Chevers has published an " quiry into the Causes of Death after Injuries and Surgical Op tions," which is one of the best memoirs on the subject we possess, and written by a physician, not a surgeon. In this me Dr. Chevers gives an account of the post-mortem appearances fo in the bodies of 153 patients, many of whom "had undergone operations or suffered from extensive accidental injuries," "others had been the subjects of wounds or contusions of an parently very trivial kind." Of these 153 patients only 19, or every 8, died, of tetanus, sloughing, hemorrhage, suppuration, other immediate and purely surgical complications.

Secondly, if thus only so very small a proportion, therefore surgical patients die of fatal surgical complications, what do great mass of them die of? They perish showing symptoms acute fever during life, and showing on examination after death various internal organs, the products of acute and recent infl mation. They die of surgical fever, a disease consisting of a co bination of co-existing acute fever, and acute internal inflammati just as puerperal patients die of puerperal fever, a similar co pound disease, consisting exactly like surgical fever of co-exist acute fever, and acute internal inflammations. Of Dr. Chevers's surgical patients, 134 died of surgical fever, and presented a death recent acute inflammatory effusions and lesions in vari internal organs. The relative frequency with which different internal organs and parts of the body were found attacked with acute inflammation in these 134 cases, is shown in a condensed form in the following table :—

Inflammatory Lesions in 134 *Cases of Surgical Fever.* (*From Chevers.*)

	Cases.		Cases.
Peritonitis was observed in	52	Arteritis and aortitis	4
Enteritis (excluding cases of hernia)	9	Phlebitis	3
Pneumonia and its results	47	Meningitis	27
Pleuritis	35	Cerebritis	9
Bronchitis, laryngitis, and diptheritis	4	Cystitis	8
Pericarditis	14	Pus in muscles or joints	3
		Inflammation of tunica vaginalis	1

When in Vienna last summer, my nephew, Dr. Alexander Simpson, obtained access to the pathological records of the large General Hospital there, where the autopsies are made under the supervision of Professor Rokitansky, and drew up for me from these records some statistical tables to show the relative frequency with which the various organs and parts of the body become the seat of secondary inflammatory changes in the cases of patients dying of surgical and of puerperal fever respectively. Allow me to call your attention now to this

Table showing the relative frequency with which different Organs and Parts of the Body were found to have undergone recent Inflammatory Changes in 100 *Cases of Surgical Fever.*

	Cases.		Cases.
The lungs and pleura in	69	Bladder	6
Veins	53	Liver	5
Seat of the operation or injury	40	Pericardium	4
Cellular tissue and muscles	28	Lymphatics	3
Peritoneum	16	Arteries	2
Brain and its membranes	16	Vagina	2
Bones and joints	15	Interior of uterus	1
Spleen	10	Heart substance	1
Kidneys	9	Parotid gland	1
Stomach and bowels	7	Ear	1

The patients in whom inflammatory lesions of these various internal organs and parts were discovered after death, had been subjected to operations and injuries of all parts of the body, and of all degrees of severity, from amputation of the thigh, down to the operation for phymosis, and the simplest most superficial wounds

Consider now that table of the organs and tissues most commonly affected by inflammation in cases of surgical fever, with this

Table showing the relative frequency with which different Organs and Parts of the Body were found to have undergone recent Inflammatory Changes in 500 *Cases of Puerperal Fever.*

Seat of the Inflammatory Lesion.	No. of Cases.	Percent. of Cases.	Seat of the Inflammatory Lesion.	No. of Cases.	Percent. of Cases.
Interior of uterus . .	372	74·4	Kidneys . . .	17	3·4
Veins of uterus . .	349	69·8	Stomach and bowels .	13	2·6
Peritoneum . . .	321	64·2	Pericardium . .	12	2·4
Lungs and pleura . .	202	40·4	Mamma . . .	7	1·4
Lymphatics . . .	129	25·8	Fallopian tubes . .	5	1·
Ovaries . . .	78	15·6	Bladder . . .	4	0·8
Cellular tissues and muscles	46	9·2	Parotid gland . .	3	0·6
Veins other than uterine	40	8·0	Heart substance . .	3	0·6
Brain and its membranes	23	4·6	Endocardium . .	2	0·4
Spleen	21	4·2	Iris	1	0·2
Vagina and pudenda .	19	3·8	Tonsil . . .	1	0·2
Bones and joints . .	18	3·6	Larynx and trachea .	1	0·2

A comparison of these two tables will serve to show you how far we are justified in speaking of surgical and puerperal fever as analogous in their nature; and the difference in the frequency with which different internal organs and parts are apt to become the seat of the acute inflammatory effusions and changes in the two sets of cases, is owing mainly, if not indeed altogether, to the difference in the seat of the primary lesion; for the identity between the two diseases becomes more striking if we compare the latter of these two tables with such a one as this:—

Table showing the relative frequency with which different Organs were found to have undergone recent Inflammatory Changes in 19 *Cases of Surgical Fever, resulting from Operations or Injuries of the Pelvic Organs (including three cases of Herniotomy).*

Seat of the Inflammatory Lesion.	No. of Cases.	Percent. of Cases.	Seat of the Inflammatory Lesion.	No. of Cases.	Percent. of Cases.
Peritoneum . . .	12	63·1	Liver	3	15·8
Lungs and pleura . .	12	63·1	Veins	2	10·5
Seat of wound . .	5	26·3	Spleen	2	10·5
Cellular tissue around kidneys	5	26·3	Vagina	1	5·3
Cellular tissue elsewhere	4	21·	Uterus	1	5·3
Intestinal canal . .	3	15·8	Bronchi . . .	1	5·3
Bladder	3	15·8	Parotid gland . .	1	5·3

The proportion in which different internal organs are the seats of acute inflammatory action and deposits, is very much the same in this table as in patients dying of puerperal fever, apparently, because, I beg to repeat, the primary lesion or wound in the surgical cases included in this table was, as in the puerperal patient, in the pelvic viscera or neighbouring parts. But we must hasten on to discuss another question, viz.—

WHAT IS THE NATURE OF THE MALADY WHICH ACCOMPANIES OR GIVES RISE TO THESE SECONDARY LESIONS?

We have seen that every patient who is placed upon an operating table runs no small risk of death, and that, when the operation is severe, the patient is in as great, or indeed greater danger than a soldier entering one of the bloodiest and most fatal battle-fields. We have seen also that while a few of these patients die of the immediate surgical consequences and complications of the operation itself, the vast majority of them are carried off by a febro-inflammatory malady, resulting, indeed, from the operation, but proving fatal from the morbid changes which it produces in different and sometimes distant parts of the body. In this surgical fever, as in puerperal fever, you have a constitutional fever accompanied by the development of local acute inflammatory disease, confined often to organs and parts lying in the vicinity of the site of the primary injury, but in many cases diffused over other more remote organs and textures. This fever may be of three kinds, or rather, it manifests itself in three different kinds of cases.

1. *Fever from Local Inflammation.*—Fever may be a symptomatic result, first of all, of a very intense degree of inflammation set up in the seat of the operation or injury; but in such cases it rarely leads to a fatal issue. For unless the patient be very much reduced in strength, or altogether in a very bad habit of body, the inflammation excited in any injured part can but seldom be of such a high degree of intensity as to prove fatal of itself. This may also occur in such exceptional cases as you have an instance of in the second of the patients whose history I have given you, and who died in consequence of the inflammation set up in an evacuated ovarian cyst. There the inflammation was spread over all the interior of an enormous cavity, and proved fatal, just as inflammations of such an extensive surface as that of the peritoneum do—viz. by gradual depression of the action of the heart.

2. *Fever with Inflammation extending to neighbouring parts.*—

Fever in surgical patients is much more frequently found to arise from, or at least to be associated with, inflammation not confined merely to the seat of the injury, but spreading thence to other parts and organs, either from continuity of texture or contiguity of position. In almost every instance of this kind, the nearest lymphatic glands are more or less hyperæmic and hypertrophied, for the morbific agent seems in them to have a tendency to spread along the lymphatic system of vessels, and to excite in them a high degree of inflammation.

3. *Fevers with disseminated Centres of Inflammation.*—In a third and by far the most extensive class of cases of surgical fever, the inflammatory lesions and manifestations are not confined to the seat of the injury, or to the textures in its vicinity, but are found situated in different and distant organs and parts of the body. Of all internal organs the lungs are those which are the most liable to become the seat of those secondary or metastatic inflammations; and when a careful examination of such cases is made, there is almost always to be detected some morbid condition of the veins in the neighbourhood of the original wound.

Now, in the case of patients dying of fever consequent on surgical operations or injuries, you will find, as I have already stated, that very few indeed die of the fever attendant on inflammation confined to the wounded part; and that in the vast majority of cases, the fever is found to have been complicated by the occurrence of inflammatory changes in other parts,—sometimes near the seat of the injury, but sometimes more remote; and it is of this latter class of cases that I wish at present more particularly to speak under the designation of Surgical Fever. How is it, then, that surgical patients are so apt to die of this form of fever? In olden times, surgeons would have been content to believe that the fever resulted from inflammation set up in the site of the wound, or from sympathetic inflammations, as they were called, in other parts. But this idea has been given up since it was found that there was no proportionate degree of intensity between the amount of fever and the amount of inflammation at the site of the surgical wound. A very high degree of inflammation may arise, for instance, in the stump of an amputated limb, and pass on to suppuration and ulceration, while the patient presents but few or no symptoms of surgical fever; and on the other hand, fever may set in and prove fatal in cases where the wound appears to be the seat of no higher degree of inflammation than is necessary to produce adhesion of the opposed raw surfaces. There is not of necessity, either in surgical or in puerperal fever, any relation of intensity between the local lesion and the constitutional malady, and there is no surgeon or pathologist, so far as I know, who now seeks to find in the former the only cause of the latter; for all are rather inclined to the belief that they are both effects of one common cause, that cause being some toxic or diseased condition of the circulating fluids. In smallpox, measles, dothenenteritis, and some other natural fevers, if I may be allowed to call them so, where likewise a constitutional fever and local inflammations are found associated together, we no longer believe that these—viz. the general fever and the local inflammations—stand to each other simply in the relation of cause and effect. Doubtless the fever may be aggravated by the severity of the local lesions, but they are both in the first instance excited and engendered by some morbid material circulating in the blood; they are both due, in each particular case, to some peculiar form of toxæmia. They do not stand to each other in the relation of cause and effect, but are both the effects of one common cause —the special toxæmic state of the blood. And in surgical patients, too, the blood may become poisoned and perverted in its nature; and it now remains for us to inquire by what means the blood becomes altered, or what are the changes which it undergoes, and which excite in the patient such a fatal fever and so many local lesions. But I must postpone the consideration of this part of the subject until we meet here again.

LECTURE XIX.

ON SURGICAL FEVER—ITS ETIOLOGY AND SEMEIOLOGY.

THE ETIOLOGY OF THE DISEASE.

GENTLEMEN—As in other febrile diseases, so in the case of Surgical Fever, we classify the causes which produce it according as they are 1. *Predisposing*, or 2. *Exciting*.

1. *Predisposing Causes.*—When I speak of the predisposing causes of the disease, the vitiated atmosphere of hospitals, the bad habits and unhealthy occupation of patients, their impaired nutrition, their debility from long previous disease, or depression from sudden injury, the nervous shock of a severe operation, and other kindred evils, will all occur to your minds as so many predisposing agencies, which may each and all prove sources of danger for any particular individual. And keeping that in view, you will readily understand how it is that this disease is relatively so frequent and fatal among hospital patients, and why it should be more common in large towns than it is in country districts. But along with and in addition to these predisposing causes, perhaps there is another source of danger, not so self-evident as these, yet present to a greater or less degree after operations and injuries, and dependent on the altered condition of the blood. When patients have been subjected to surgical operations and injuries, a disturbance seems generally to take place to a greater or less extent in the interchanges which should go on between the constituents of the blood and the injured textures, and in the case of amputations, more particularly, various substances come to be retained in the circulating fluid, which ought to have been appropriated to the nutriment of the limb that has been lost; the chemistry of the blood becomes, for the time, disordered and deranged, by this and by the agency of the preceding predisposing causes which I have named; and further, it appears to be disordered and deranged principally, perhaps, by the morbid retention and accumulation of secretory and excretory matters within it. The testimony of Dr. Chevers is strikingly corroborative of this view; for he

has pointed out in the paper to which I have already referred, that the liver, the spleen, and above all, the kidneys (those organs which are chiefly concerned in the formation and purification of the blood), showed evidence of previous chronic disease in three-fourths of all the cases of surgical fever, where the results of the post-mortem examination in Guy's Hospital had been kept. You will be better able to appreciate the importance of this source of predisposition, when you know something about the

2. *Exciting Causes.*—We have just seen how it is that the blood of surgical patients may come to be loaded with matters which readily decompose and give rise to febrile phenomena; and our next inquiry must have reference to those materials which get into the blood, and act as ferments in throwing these retained excretory and probably highly azotised matters into a state of decomposition, and so act as the immediate or exciting causes of surgical fevers. Now, here you will find that there are two morbid materials which have been regarded as pre-eminently capable of producing that sort of fermentation; if, in accordance with the views of some high modern—as well as ancient—authorities, we may so term that change, which constitutes the toxæmic cause and essence of surgical and other fevers. And these are,

1*st.* *Septic Matters absorbed from the Wound.*—Some pathologists have been content with the idea that when the wound becomes inflamed, and the inflammatory action passes beyond the purely adhesive stage, a depraved or decomposing fluid is liable to be produced, which may become absorbed, and exert a zymotic influence on the fermentable matters already present in the blood. In some instances the rigor and commencement of the fever follow almost too rapidly after the operation to have allowed of any true inflammatory products to have been generated in the wound; certainly too soon for pus to form. But, perhaps, the whole pathological mechanism of the disease in relation to its origin in the absorption of septic or other matters, and otherwise, will be better understood by you, by contrasting it with some toxæmic malady, the nature and course of which is better known. Let us take, for example, an illustration I have already named—viz. smallpox. Smallpox (like surgical fever) is generally, if not universally, acknowledged to depend upon a special toxæmic or diseased state of the blood, as its pathological cause or essence. 2. As a result of this morbid or toxæmic state of the blood, there occur, in both diseases, two sets of symptoms or consequences—the one constitutional, the other local. 3. The constitutional symptoms or consequences in both affections are a special form of fever. 4. The local symptoms or consequences in both affections consist of acute disseminated inflammations: in smallpox, on the skin and mucous surfaces; in surgical fever, in various and different internal organs. Inoculated smallpox is further, I believe, analogous to surgical fever in this respect: that in both maladies the diseased action takes its origin from a wounded surface, and by the absorption of a septic poison from that surface. Both require materials to exist in the blood or body for their respective poisons to act upon; and in the case of smallpox, if these materials have been already exhausted by a previous attack of the malady, no consequences follow the admission of the septic poison into the blood. We do not in the least degree yet know upon what the septic or poisonous property of inoculated smallpox matter depends; nor are we at all acquainted with what forms the peculiarity of the septic matter in surgical fever.

2*d*. *Pus absorbed into the Blood-vessels.*—Some pathologists have held that pure pus is absorbed as pus from the wound, and gives rise to the febrile symptoms either by its own decomposition or by the decomposition which it produces in some of the matters circulating there. No point in connection with the pathology of surgical fever has been more disputed than the question as to whether pus, as such, ever becomes absorbed from a wound and mingles with the circulating fluid. As obstetricians, we know that the passage of pus into the blood is not at all a necessary condition for the development of fevers attended with local purulent inflammations. For we occasionally meet with cases where the fœtus *in utero* is attacked by a morbific agent which leads to the development of a multitude of disseminated abscesses over all parts of its body. We know, in other words, that the fœtus, while still in the mother's womb, may be attacked with smallpox; and yet there is no direct vascular communication between the mother and the fœtus—there is no interchange of blood-corpuscles between them—and there can occur no transition of pus-corpuscles from the maternal to the fœtal bloodvessels. But some finer form of morbific agency than pus must pass from the maternal into the fœtal system; and arguing from such facts as these, those surgeons and pathologists are justified in their opinion, who hold that the absorption of pus from a wounded surface is not necessary for the production of a general fever, like surgical fever, accompanied with secondary local inflammatory lesions. Those who hold an opposite view tell us that in such cases pus-corpuscles are found in the blood, and they ask how it comes that these get there, if they have not been absorbed from the suppurating wound. Here, however, I must remind you that the cells in question are not of necessity to be regarded as pus-corpuscles. For, as you know, the pus-corpuscles differ so little in microscopic appearance and chemical reaction from the white or colourless blood-corpuscle, that the only ground of distinction which the best histologist can discover between the two, lies in the situation in which the body is found. You know further that there are a variety of cases in which the number of colourless corpuscles in the blood comes to be greatly increased, and that there is one condition common to all those cases, whether they be morbid or more normal—viz. a temporary or more permanent enlargement of the spleen or lymphatic glands, or of other glands or textures in which the corpuscles are constantly being developed. In the much-debated leucocythæmia, you have an instance of this condition becoming permanent and usually fatal, and depending in one set of cases on enlargement of the spleen, in another on enlargement of the lymphatic glands, while in a third set of patients both kinds of glands are found to be simultaneously affected. A temporary increase of the number of white blood-corpuscles, or leucocythosis, as Virchow has designated this condition, is seen in females during pregnancy, and soon after delivery, and in them there are important changes in the uterine organs, and enlargement of the pelvic glands. In all individuals, indeed, according to some of our latest physiological observers, this condition is established after every meal, and may be traced to the enlargement that then takes place in the mesenteric glands. It need not, therefore, surprise us to find in patients affected with surgical fever that the number of the colourless corpuscles in the blood is greatly multiplied, seeing that in such cases there is almost always more or less inflammatory excitement and enlargement of the cellular tissue at the seat of the injury, and of the lymphatic glands in the vicinity, and very frequently some acute morbid change in the liver, kidneys, or spleen, as well; and we need not have recourse to the hypothesis of an absorption of pus-corpuscles from the wounded surface, to explain the phenomenon of the large number of pale granular cells, with one, two, three, or more nuclei found circulating in the patient's blood. It may be that some portion or element of the liquor of pus, or some material resulting from its disintegration, comes to be absorbed from the wounded surface, and acts the part of a ferment in the blood; but whatever it may be, it can certainly not be the pus-corpuscles.

Nor are we to regard them as the

CAUSE OF THE SECONDARY DEPOSITS AND ABSCESSES, or collections of purulent matter that we occasionally see in cases of surgical or puerperal fever in the lungs, spleen, liver, etc. For independently of the two facts—1. that pus-corpuscles are not, as a general rule, taken up at all by the blood-vessels, and only are found there in those exceptional cases where a vessel is directly broken into by a purulent collection originally formed outside of its walls; and 2, that the lining membrane of veins is apparently, from all the evidence, incapable of secreting pus, we find that there is no pus at all in those secondary abscesses in their first stage. In truth these disseminated centres of disease which we meet with frequently in the lungs, spleen, kidneys, and other organs of patients dying of surgical and puerperal fever, are not to be regarded as genuine abscesses resulting from a simple inflammation in the parts; but the opinion is gaining ground that we have here to do with two forms of the multiplication of disease. Either, firstly, they are due to a vital alteration or destruction of the part, resulting from the impaction of some material in the afferent blood-vessel, which has been brought from the veins at the seat of the injury, and been here arrested or filtered out; or, secondly, they may be produced by the mis-secretion of some finer material which we have no physical means of recognising, and which, in its effects and irritant mode of action has more affinity with chemical substances. There is, if I may so express it, a mechanical or physical, and a chemical or secretory metastasis.

1. *Mechanical Metastasis: Embolism.*—In very many instances the blood in the veins at the seat of the wound in the case of surgical fever, like the blood in the veins of the uterus in the case of puerperal fever, becomes, as Dr. Wise has expressed it, "consolidated." This "consolidation" or coagulation of blood, which has been carefully investigated by Virchow, and described by him as thrombosis, is not confined to that contained in the smaller veins, but is continued on to that in the vessels of the largest size, and according to the further changes that occur it may lead to the production of metastatic inflammatory centres of disease in one or other of two different ways. First, the "consolidation" of the blood may go on in a vein up to the point where it opens into one of larger calibre without producing any further injury. But should the process still go on, as is so frequently the case, then from the superposition of fresh fibrinous layers, the clot or "thrombus" comes

to project into the cavity of the larger vessel in the manner shown in the annexed woodcut from Virchow's late very masterly work on *Cellular Pathology* (see Fig. 60); and then you can readily understand how, in some movement of the body, or from some other accident, this projecting cap may become detached and be carried along in the circulating stream, only to be arrested at the bifurcation of some subdivision of one or other pulmonary artery. (See Fig. 61.) This transport of bodies in the blood, and their final arrest in the smaller vessels, are phenomena not confined, by any means, however, to the venous system, for they are met with also in the arterial system, and sometimes of a large size, in cases of vegetations on the aortic valves, of atheroma in the larger arteries, and such like. These travelling bodies have been, as you know, termed "emboli," and their impaction with its results has been summed up in the designation of "embolism." When such an embolus gets arrested, as they most commonly do, at the bifurcation of an arterial trunk, neither of the branches of which is large enough to allow them to pass, the immediate result is that the supply of blood to the part beyond the obturated vessel is greatly diminished or alto-

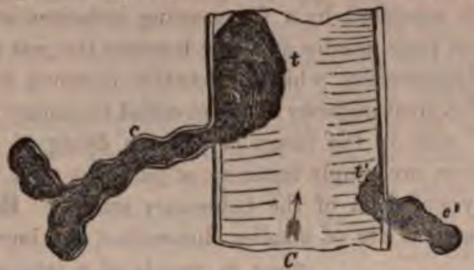


Fig. 60.

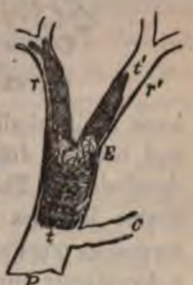


Fig. 61.

Fig. 60. "Thrombi arising in one vein, and passing continuously into another. *c c′*, Smaller, varicose, lateral twigs (venæ circumflexæ femoris) filled with autochthonous thrombi, which stretch beyond the ostia into the trunk of the femoral vein. *t*, Continued thrombus produced by concentric apposition from the blood. *t′*, Appearance of a continued thrombus after separation of some pieces (emboli) has been effected."—(Virchow.)

Fig. 61. "Embolism of the pulmonary artery. *P*, A medium-sized branch of the pulmonary artery. *E*, the embolus, riding on the fork of the dividing artery. *t t′* The enveloping (secondary) thrombus. *t*, The portion in front of the embolus reaching as far as the next collateral vessel (*c*) above it. *t′*, The portion behind the embolus, nearly filling up the branches *r r′*, into which the artery divides, and at last ending conically."—(Virchow.)

gether cut off; and this is speedily followed by an infiltration blood into all its tissues. The way in which this infiltration blood into the tissues of a part, whose vascular supply has bee suddenly diminished or cut off, takes place has not been satisfactori explained; but the result is that either the part becomes gangre scent, and is separated by a demarcating inflammatory process, gangrenescent parts usually are, or it becomes the seat of an indu tion and degeneration which effectually destroys its functio activity. The great majority of the so-called secondary or metas "abscesses" seen in the lungs of patients dying of surgical a puerperal fever, are simply instances of gangrene with its results produced by embolism of the pulmonary arteries. But, second where the emboli are of smaller dimensions, the impaction tak place in vessels of a smaller calibre. what has been designated "capillar embolism," becomes established. In th case also the thrombosis gives rise to t foreign body, but in a different mann The thrombus, instead of growing wards towards the centre of the cir lation, undergoes a variety of changes In the first place, the red corpuscl loose their vitality and part with their hæmatin, which escape and becomes diffused all around, and in this way the clot beco decolorised. Then these same corpuscles break down, and th fibrine becomes disintegrated and dissolved, while the colourles corpuscles remain still unchanged, so that the softened mass pres a deceptively puriform appearance. Now, if some portions of softened thrombi get by some chance into the circulating fluid, will be carried first of all to the lungs, where the grosser particles be filtered out, and lead to the changes already adverted to; the finer particles may pass through both sides of the heart, lead to the production of capillary embolism, so minute as to readily overlooked, in various other organs of the body. Wi reference to this point, Professor Beckman, of Göttingen, has ma some interesting observations on the kidneys of persons dying

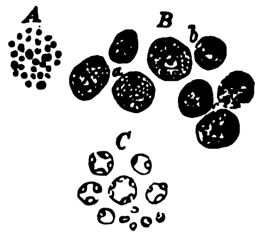


Fig. 62.

Fig. 62. "Puriform débris of softened thrombi. *A*, The various larg granules of the disintegrating fibrine. *B*, The colourless blood-corpuscles set by the softening, and in part degenerated. *a*, With several nuclei. *b*, W single, angular nuclei and several fatty granules. *c*, Without nuclei (pyoid) a state of fatty metamorphosis. *C*, Blood-corpuscles becoming decolorised disintegrated."—(Virchow.)

surgical and puerperal fever; and has almost invariably detected the existence of great numbers of minute emboli in kidneys which presented to the naked eye only the appearance of small ecchymosed or purpurous spots; and it still remains for further investigation to show how far those inflammations of the liver, spleen, and kidney, which are found in such cases, may be due to this capillary embolism, or to some more subtle and refined morbific agency.

2. *Secretory Metastasis.* — There is another common mode by which inflammatory action seems liable to be set up in various parts of the body—namely, in surgical fevers and other toxæmic diseases, and particularly on serous and synovial surfaces, in consequence of the local deposition and irritant effect of some morbid material or materials circulating in the blood. The effects produced by such a *materies morbi* and its mode of action become intelligible, as it seems to me, by studying the manner in which acute secondary inflammations are produced, as so very frequently happens in the case of patients affected with Bright's disease of the kidneys. I think we can see our road to the explanation in this way. When a patient with albuminuria takes diarrhœa, we find that the dejections are loaded with urea; and seemingly for this reason—viz. that the urea, accumulated in some conditions of this affection in morbid excess in the blood, does not escape through its ordinary channel, the kidneys, which are in a state of disease, but becomes mis-secreted or mis-excreted by the mucous membrane of the intestinal canal, upon which membrane urea acts the part of an irritant, and excites there an inflammatory serous or watery effusion. Urea is not an irritant to its natural emunctory, the kidney, but it is a strong irritant to some mucous membranes, and to serous surfaces and other tissues. Pleuritic and pericarditic effusions are very frequent in cases of Bright's disease; and when such effusions have been examined chemically and early, they have been found to contain a large amount of urea. There is a quantity of effete matter in the blood, of which nature has to get rid; and the ordinary channel of relief being shut up, this matter is thrown out upon the pleura, etc., where it acts like blisters applied to the skin, and produces a more or less intense degree of inflammation. In rheumatic fever, pericarditis, etc., is probably lighted up by a similar mis-secretion into the pericardium of the accumulated lactic acid, or poison of rheumatic fever, whatever it may be. Studying the secondary lesions of surgical and puerperal fever with this key, we may yet perhaps find the explanation of some of the common and acute forms of secondary

inflammatory lesions and effusions observed in these diseases—as those inflammations of the pleura, joints, etc., which end so rapidly in sero-purulent effusions—to be produced and set up in the first instance by the mis-secretion or elimination upon the inflamed surfaces or at the inflamed spots of morbid materials existing in the blood, and capable, when thus localised, of lighting up acute inflammatory action by their presence as local irritants.

There is another question on which I would beg to make one or two observations—viz. in addition to the conditions already stated, are there any other appreciable *circumstances determining the seats of the inflammatory changes and effusions in surgical fever?* Now, there are many facts in pathology which seem to prove that in cases of febrile and other forms of toxæmia, the resulting inflammatory action is specially liable to become localised and lighted up in any parts or organs that are temporarily weakened and depressed in their vital force and powers. Thus boils, erysipelas, etc., are apt first to break out upon, or in the immediate neighbourhood of, parts recently hurt and injured. I have known a patient attacked with smallpox who shortly before had required to get the knee blistered. The eruption was very thin and sparse everywhere, except upon this knee; but its still damaged and debilitated cutaneous tissues were covered with concrete pustules. In a similar case Dr. Budd saw the smallpox eruption covering in an almost confluent form the nates, which shortly before had been contused by a fall; and everywhere else on the surface of the body they were discrete and very few. In puerperal fever, probably on the same principle, the inflammatory changes and effusions are usually greatest in the uterine organs and peritoneum, which have been temporarily depressed and damaged by the process of delivery. And in cases of surgical fever, one marked seat of the attendant inflammations is in the wound, and in its neighbouring parts, particularly if these parts happen to be one of the great serous cavities of the body.

SEMEIOLOGY.

Such being the different modes in which the secondary lesions are produced, the question next occurs—How are we to recognise the onset of an attack of surgical fever? And to enable you to answer this question for yourselves, I must point out to you, shortly, the most common and constant symptoms of the disease.

1. *Rigors.*—The patient whose history I first read to you had,

as you must have observed, a rigor about thirty or forty hours after the time of the operation. Now, whatever may be the physiological explanation of this phenomenon—and many explanations have been given, which it were more curious than practically interesting to dwell upon—a shivering fit of greater or less intensity, and of longer or shorter duration, is common to all the various forms of surgical fever, and is the first and one of the most common symptoms of the occurrence of the disease. You must not expect, however, to find every attack of surgical fever ushered in by rigors; for in some cases it would appear as if they never occurred at all, and in others they are so slight as to be readily overlooked. But still the occurrence of a rigor in a patient who has been subjected to any operation, should at all times make you alive to the probability of an attack of fever, and then the next point to be attended to is

2. *Acceleration of the Pulse: Respiration.*—For next to the rigor the rapid rise of the pulse is the most common indication of the onset of the disease; and is its most constant and most pathognomonic phenomenon throughout its course. Every medical man who is told that a surgical patient has had a shivering fit, at once puts his finger on the patient's pulse to ascertain whether it be in any degree accelerated. If he find that it is up, and beating from 100 to 120 strokes in the minute or oftener, he knows at once that some mischief is going on; and generally speaking, the case is dangerous according to the degree of exaltation of the pulse. In some cases it runs up nearly to even 130, 140, or more. It is generally more weak as well as more rapid than usual. The occurrence of a rigor, and sudden and marked acceleration of the pulse, are, then, the two most constant indications of the occurrence of surgical fever. Dyspnœa and accelerated laborious respiration often come on in the course of the disease, and are always most unfavourable phenomena. The other symptoms are all subject to much variation, and depend on the

3. *State of the Tongue, Skin, etc.*—Most practitioners will look at the tongue to see in what state it is; but it varies so much in different patients affected with this disease, and is so liable to be affected according to the predominance of some of the minor lesions or morbid conditions, that we cannot regard any particular condition of the organ as characteristic of surgical fever. When glazed and dry, it presents itself to us in its worst aspect, and continued moisture and softness of the tongue in any case make us always more hopeful of our patient's recovery. The colour and condition of the skin are likewise variable. In some cases it becomes moist, and is covered

with a perspiration which you might suppose to be critical and beneficial, but which in reality is not so. When suffused with such perspiration, the surface is usually cold; in other cases it is sometimes cold to the touch, sometimes burningly hot. Not unfrequently the skin takes on an unusual dingy yellowish tint, or becomes leaden-coloured or icteric. As regards the nervous symptoms, you will find that there is usually great depression from the first; and in some cases low muttering delirium sets in early, and is always to be looked on as a very unfavourable symptom. Sickness and vomiting are very common occurrences; especially where the primary lesion is in any of the abdominal organs, and was seen in both of the cases in our ward. Diarrhœa is a frequent complication. These symptoms of surgical fever, I repeat, are all subject to the greatest variations, but in no case will you find a slow and steady pulse.

Signs of the Secondary Lesions.

The secondary or metastatic inflammations are not usually so intense in character as to lead to the development of any very marked symptoms. They are often masked and merged in the general phenomena, and may be altogether overlooked. Nor is their detection in every case a matter of vital importance. The supervention of inflammation in any organ will usually be indicated by some derangement in its functional activity. Thus, if the lungs have become affected, the patient will most likely have slight cough and expectoration, and will complain of stitches in the side. But this is not necessarily the case; and great effusions may occur into the pleural cavity, for instance, without the production of any marked symptoms. Auscultation and percussion would, of course, serve to detect such a condition; but the patient is often too weak to allow of our subjecting him to the ordeal.

LECTURE XX.

SURGICAL FEVER—ITS TREATMENT.

GENTLEMEN—On the treatment of surgical fever I do wish that it were in my power to state something more precise and certain than it is possible for me to offer you; but the whole subject forms a topic regarding which few or no definite and determinate principles have yet been established. We may divide the treatment, however, into two great departments—namely, first, the prophylactic or preventive treatment of the disease; and, secondly, the curative treatment of the malady after it has once commenced. In this, as in other cases, the prophylactic will ultimately, in all probability, come to be of more moment and of more practical import than the curative treatment. But as yet, I repeat, we know too little of either.

I. THE PREVENTIVE OR PROPHYLACTIC TREATMENT.

A variety of propositions have been suggested by surgeons at different times with the view of preparing patients against the contingencies and dangers of surgical operations, or rather against the chance and danger of surgical fever supervening after these operations.

1. *Date of Operating.*—The question, for example, has been agitated as to whether it was right and advisable to proceed to amputation immediately in cases of traumatic or gunshot injury requiring that operation, or whether it was safer to postpone the operation for thirty, sixty, or more hours subsequently. This constitutes, as you are aware, the essence of the discussion that was carried on among military surgeons for many years as to the eligibility of primary or of secondary amputations among soldiers wounded in battle. It seems now generally decided that the chances of the recovery of the wounded patient are greatly increased, and consequently the chances of surgical fever greatly diminished, by the damaged limb being amputated at once; instead of that operation being postponed and delayed for two, three, or

more days. This principle probably applies to cases of traumatic injury in civil as well as in military practice. But, again, many of our best hospital surgeons have thought, in regard to chronic cases requiring surgical operation, that it was better and safer not to operate till the patient was acclimated to the hospital by a residence in it of a few days' duration. Others, however, act upon the opposite rule, and operate as soon as the patient enters the hospital, believing that a state of anxiety kept up for some days is liable to damage the patient's constitution, and likely to decrease his chances of recovery. I am not aware that any extensive observations have yet been made tending to settle either on one side or the other the question of the advantage or disadvantage of a short preparatory residence in hospital as a protective against the chances of surgical fever. This question of predisposition to surgical fever may perhaps be stated in other words, thus:—Is not the patient more predisposed to surgical fever when his blood has become deteriorated and charged with effete organic matters, from being allowed to remain unoperated upon for some days, after a severe traumatic injury; or, in chronic surgical cases, from being allowed to live for a time in the vitiated air of an hospital before being subjected to the surgeon's knife?

2. *Preparation by Previous Restraint.*—Patients previously in a state of comparative health are sometimes apt to have more or less constitutional disturbance if they are suddenly and inevitably confined to bed; and particularly if they are restrained in one fixed and unchangeable position. They pass through, in other words, what some old surgeons have called "bed-fever." Now, there are some operations in surgery, and those of a kind which, though slight in themselves, are apparently specially liable to be followed by dangerous consequences, where the patient from the hour of the operation is of necessity fixed and restrained in one position. Such an operation is that otherwise seemingly simple one of removing loose cartilages from the cavity of the knee-joint. Listen to the sagacious prophylactic treatment which a London surgeon, Mr. Young, used formerly to apply to such patients as he operated on for this affection. I quote the account from Mr. Travers' work on *Constitutional Irritation.* "A healthy carman," writes Mr. Young, "came under my care with a loose cartilage in the right knee-joint. It had several times occasioned him to fall suddenly, and he was very anxious to submit to an operation to get rid of it. It appeared to me desirable to accustom him, before the operation, to the reduced diet, rest, and restraint which would be necessary after it. He

accordingly kept the house. On the second or third day of his confinement I put on the roller and bound on the back splint exactly as I intended to do after the operation, to keep the limb perfectly steady. This confinement of the limb occasioned a restless night, some fever, a whitish tongue, a quickened pulse, a little headache, spare and high-coloured urine. He was very unwilling to continue the bandage and splint, to which he ascribed (and justly) all his constitutional disturbance; and the utility of which, prior to the operation, he could not at all comprehend. This circumstance, however, forcibly suggested to me the importance of accustoming him to restraint; it was, therefore, continued; the excitement which it had produced gradually subsided, and when I found that the bandage no longer occasioned any irritation, I performed the operation. Not one untoward symptom arose, the constitution was not in the least ruffled, and the wound healed by the first intention."

3. *Antecedent Dieting.*—It has been proposed to attempt to guard surgical patients against the danger of surgical fever by the antecedent use of particular kinds of diet, and still more of particular kinds of medicine. Of course, this indication can only be carried out where the surgical operation is for some chronic form of disease or injury, and where this kind of preparatory treatment can be carried on for a week or two, or longer, before the date of the intended operation. Some men fed in a particular way are specially liable to fatal attacks of surgical fever after even the slightest operations. Their blood is probably permanently supercharged with such excess of fermentible organic materials as readily to undergo those zymotic changes which, as we have seen, apparently constitute the foundation and essence of surgical fever. Thus many London surgeons tell us that the draymen and other servants connected with the large breweries in the metropolis, and who, as a general law, are perhaps in the habit of drinking too much of their own ale, almost all go wrong when admitted into hospital with surgical wounds or injuries. Is the Irish peasant, fed almost solely on potatoes, or the Scotch peasant, fed almost solely upon oatmeal, as liable to fatal surgical fever after surgical injuries? I can adduce no statistical proof in answer; but the general impression seems to be that they stand surgical knocks, and injuries, and operations, with a wonderful impunity. We know statistically that the rice-eating Hindoo usually recovers with unusual speed and certainty after severe surgical mutilations. There was some time ago published a series of a hundred

operations for elephantiasis of the scrotum, an operation which is often most formidable from the great size of the tumour which is removed. In the list I allude to, only six or seven, as far as I remember, died. But here, perhaps, the wonderful success that was attained was dependent upon the race on whom the operation was performed. For, as a general law, the black races seem to bear injuries and operations with far more impunity than the white races of mankind; that is, they do not apparently fever after them with the same facility or the same intensity. But it is at the same time to be remembered that when epidemic diseases and fevers, such as cholera, yellow fever, etc., once do in reality attack members of the black race, they usually sink more speedily under them than members of the white race living in the same locality.

We as yet know too little of the effects of rapid changes in food to be able to say whether any great alteration in the diet of a patient for two or three days before the performance of a surgical operation, is likely or not to have much influence on the result, though the subject is one certainly worthy of a more elaborate consideration than has hitherto been allotted to it. You will find in practice that some surgeons are in the habit of placing their patients on a lowish table of diet for a day or two before operating. But most of them follow an opposite rule, believing that patients have the best chances of recovery when operated on with their constitutions, their blood, secretions, and excretions, unaltered by any previous notable and extreme changes in their food. Perhaps the indication ought to be to attempt to bring the patient as near the normal or natural standard of health as possible, by an improved diet if they are weak and asthenic; by a reduced diet if they are plethoric and inflammatory.

4. *Prophylactic Medications.*—Therapeutic prophylactic measures have also, as I have already hinted, been tried with the view of preparing surgical patients to encounter the danger of the surgical knife with increased chances of escape and safety. With this view, various tonics and alteratives have sometimes been given to surgical patients before operations to avert the chances of surgical fever afterwards. No very great or marked results have hitherto attended this form of surgical prophylaxis; and, indeed, we need the less wonder at this, seeing that these experiments have never yet been conducted on any very extensive scale. But I confess that it has always appeared to me that this line of inquiry was—in relation to surgical operations—one of the most important to which the "Young

Surgery" of these times could turn its attention. Look at these two patients lying next bed in the same ward; they are nearly of the same age, and were a few days ago operated on by the same surgeon. One of them has had his leg amputated, and though thus the surgeon's knife has produced upon his body a great mutilation, and left upon it a great surgical wound, yet his pulse is quiet, his skin is cool, and, in short, constitutionally he seems perfectly well. The other patient, lying within a few feet of him, has merely had a small and simple subcutaneous tumour removed from the surface of his thigh—an operation requiring infinitely less cutting, and leaving an infinitely smaller surgical wound. But his pulse is ranging up to 130 or 140, his skin is alternately burning and perspiring, and altogether he is suffering under a dangerous, and probably a fatal attack of surgical fever. Now, there must have been something different in the two constitutions of these two men before operation; the existing state of constitution in the first patient not rendering him liable to surgical fever, even after one of the severest operations in surgery; the existing state of constitution of the second patient rendering him, on the contrary, liable to be attacked after a very small wound, and a slight application of the surgical knife. The great question for solution is, Could we by any artificial means, adopted beforehand, produce in all our surgical patients that defiant or resistant state of the constitution which enabled that first patient with the amputated limb to bear with impunity, and without danger from surgical fever, the severe surgical operation to which he has been subjected? Or, in other words, could we by any antecedent means so change, improve, and fortify the existing state of constitution of the second patient, as to make him bear with impunity the application and effects of the surgeon's knife? The problem is a practical problem, not so impossible in its nature and principles as to prevent us making earnest and anxious attempts at its solution; and whoever could successfully solve it for the prevention of surgical fever in surgical patients, or, let me add, for the prevention of puerperal fever in puerperal patients, would, in my opinion, make one of the greatest advances that could possibly be effected at the present hour in the onward march of medical science; because it is one that would probably save more human lives in surgical and obstetric practice than any other one single discovery.

Various alteratives and tonics, as I have stated to you, have been tried, with this prophylactic intention, but none of them on any great scale, or with any great degree of perseverance. With this view, patients have, preparatory to operations, been placed upon doses of disulphate of quinine, of chlorate of potass, etc. You all know that Mr. Hamilton Bell, and other practitioners in this city, have of late years been led to place great reliance upon the curative powers of tincture of the muriate of iron in cases of erysipelas. In many points, there is a strong analogy, though by no means an identity, between the compound febrile and inflammatory character of surgical fever and of erysipelas. Arguing thus, I long thought that muriate of iron, if given as a prophylactic against surgical or puerperal fever, might probably contribute to prevent the constitution being attacked with these diseases; seeing that it was one of the simplest means of getting rid of the analogous erysipelatous affection after it had once begun. For about eighteen months before he retired from the position of operating surgeon to the Royal Infirmary, my friend Dr. Dunsmure was so good as to place, at my suggestion, all the patients whom he operated upon, and in whom there was time to use such prophylactic measures, upon doses of muriate of iron given two or three times a-day. Dr. Dunsmure has repeatedly assured me, that after adopting this prophylactic measure, his surgical patients seemed to him to recover better and with fewer threatenings of surgical fever than at any previous time during his connection with the Hospital. All this might be a coincidence, but Dr. Dunsmure's own impression was that this favourable result was a consequence of the therapeutic measure which he thus employed. Of course a far more extensive experience is required to establish this as a fact, and far more certain and successful prophylactics may be found than the tincture of the muriate of iron. Allow me only further to observe that if the views which I have attempted to give you of surgical fever be in any degree correct, these prophylactics will probably consist of therapeutic means capable of sustaining in their fullest activity the secretory and excretory functions of the system, and thus of keeping the blood itself as free as possible from any over-accumulation within it of unnecessary and effete organic materials. And no doubt the greater accumulation there is of effete matters in the blood at the time when fever happens to be set up in the system by the imbibition of any septic poison, the greater is the peril attending the febrile action. This is true even when the existing effete matter is not the organic material upon which the imbibed zymotic poison specially acts. Smallpox, for example, scarlatina, and measles, have specific predisposing materials upon which these different poisons severally act these specific predisposing materials being, as a general law, exhausted in the economy by one attack of these special fevers. But when the poison of any of the diseases which I have just named enters the body of a woman in the puerperal condition, and consequently at a time when her blood is temporarily overcharged with an unusual excess of organic materials in a state of retrograde metamorphosis, in consequence of the rapid absorption of the involving uterus, etc.; then the febrile action which supervenes is usually so extreme in its degree as almost always to prove speedily fatal. Hence, smallpox, scarlatina, and measles, are ten or twenty times more disastrous and dangerous in the puerperal state, than in the common normal state of the system.

5. *Purer air of Country, of Home, etc.*—Among the prophylactic measures against surgical fever, there is a series which from their great importance I ought to have mentioned earlier—I mean all those which are calculated to enable the patient to breathe the purest possible air, and to burn off in the way of respiration any excess of effete organic material which is removable by that channel, and that might otherwise accumulate within the circulating system. Surgical patients no doubt recover in greater numbers when breathing the pure air of the country, than the more vitiated air of the city, and when operated on at home, rather than in the close and crowded wards of an hospital. I have often taken occasion to ask of country surgeons the results of their greater operations, such as amputations, and been astonished at the small proportion of losses which they met with in comparison with the mortality accompanying the same operations in our larger hospitals. Many years ago, Mr. Wardrop, of London, published some observations, in which he suggested that the great success attendant upon surgical operations, in country practice, was explicable by the circumstance, that owing to less assistance being at hand in country than in town operations, excessive bleeding more frequently happened in the former at the time of operating. This unintentional blood-letting was, according to Mr. Wardrop, the cause of the greater success of country than of town operations. In these anti-venesection days, I doubt if such an explanation could be at all admitted; and besides, it may be questioned, whether in these more educated days most surgical operations are not as well and adroitly performed by those country practitioners who undertake them, as they could possibly be elsewhere. We know that when all precautions as to placing surgical patients in abundance of free and fresh air are set at nought, and when many

are crowded together into a small ward, the worst forms of surgical fever, with hospital-gangrene, spread rapidly among the unhappy inmates. You can thus create and manufacture the disease almost at will, by directly disregarding and neglecting all cleanliness and purity of air; and it may yet come to be a question whether we should not give, on the contrary, our surgical patients a greater chance of escape by changing our large hospitals into villages, and the palaces of which they consist into cottages, than by adhering to the present system of erecting for their reception houses built with wards above wards. Perhaps, even, hospital wards get deteriorated by long use, and the emptying, cleansing, and whitewashing of them from time to time is, no doubt, a prophylactic measure of paramount importance. Old surgical hospitals, and old surgical wards seldom offer such good returns from practice as newer hospitals and newer surgical wards.

6. *Particular seasons, etc., preferable.*—Under the sway of old-world wisdom and experience, many ancient surgical authors recommend all operations admitting of delay to be postponed till the return of the more healthy seasons of the year, believing, as they did, that the convalescence of surgical patients was more favourable in summer and autumn than in winter and spring. Some modern continental surgical writers still repeat the same prophylactic advice. British surgeons, perhaps, look upon all such advice with too much carelessness and contempt. But do not despise a single atom of human knowledge that gives you any chance of saving a human life. Most medical diseases are somewhat more severe, and the convalescence from them somewhat more slow and unfavourable in this country during the prevalence of the east wind. Why, when it is avoidable, should we unnecessarily submit surgical patients to the increased dangers of surgical fever at such times? In some localities, on the contrary, during particular winds, the community becomes greatly healthier than at other times and seasons. Thus Dr. Winterbottom long ago stated, that in Sierra Leone and its neighbourhood, during the blowing of the Harmattan wind, intermittent and remittent fevers straightway cease, and it is impossible to spread small-pox even by direct and repeated inoculation. Mr. Horton has confirmed to us the truth of these observations. The Harmattan wind blows usually for five or six weeks. Its great characteristic is its great dryness, for it has passed over the arid and rainless desert before it reaches Sierra Leone and other parts of the west coast of Africa. I am not aware whether surgical operations prove specially

successful during its prevalence; but probably it is so, as ulcers are averred to heal rapidly during its continuance.

7. *Communication by contagious Inoculation.*—Surgeons have hitherto scarcely, or indeed not at all, attended to a kind of prophylactic which ought to be to them of great importance, provided surgical fever is so analogous as I believe it to be to puerperal fever, as to be capable of being propagated by similar means. Almost all English accoucheurs believe that occasionally puerperal fever is liable to be communicated by the medium of the medical practitioner from a patient already attacked to a person in labour, being spread from the diseased to the healthy by the accidental inoculation into the latter of morbid inflammatory secretions thrown out in the course of the disease in the body of the former. The evidence of the truth of this fact, as far as regards the communicability of puerperal fever, is, I think, quite overwhelming to any unprejudiced mind; and the neglect and defiance of it are constantly leading to unnecessary because avoidable mortality, particularly in the practice of continental obstetric hospitals. Do the surgeon or his attendants, after handling the wounds of patients labouring under surgical fever, or coming in contact with their discharges and any zymotic poison or poisons contained in them, and immediately afterwards touching recent surgical wounds in new patients, ever inoculate into these recent wounds a zymotic poison capable of stirring up surgical fever in the new surgical patient, supposing he is otherwise predisposed to an attack of the disease? I believe that surgical fever is often enough propagated in this way, just as puerperal fever is. Surgeons will tell you that they have occasional runs of bad luck among those on whom they operate. In other words, they have surgical fever occasionally in their practice, and are spreading it from patient to patient; and ought, under these circumstances, to do what I once heard of a distinguished English surgeon doing—viz. locking up his knives for some weeks. They should, like the accoucheur, under similar circumstances, suspend their practice for a time. Perhaps surgical fever is spread in this way in hospitals by surgeons themselves, by dressers and nurses, to a degree that is at present not yet dreamt of.

But prophylactic measures against surgical fever may be employed not merely before and during operations, but after them. In all cases there is an interval between the date of the operation and the date of the attack of the disease. This interval may be an interval of hours, or an interval of days. During it various of the prophylactic measures of which I have already spoken, in the way of ventilation, regimen, etc., require, of course, to be enforced. Above all, the patient, as an important prophylactic measure, must be kept perfectly quiet, and as free as possible from all excitements and causes that could irritate either the vascular or the nervous system. It is with this view that some surgeons, particularly after great operations, are in the habit of giving their patients a full dose of opium. They usually content themselves with the exhibition of a single dose. But if it is thus of use, why not keep the patient under the influence of the drug, not for twelve or twenty-four hours only, but for some days? In the treatment of patients after the operation for vesico-vaginal fistula, I have already spoken of the safety and success which attends the practice of keeping the patient on small and often-repeated doses of opium or morphia for a week or ten days from the time of operating. In some operations, as the operation for strangulated hernia, this practice would surely be attended with happy results; and indeed after all operations of any greater severity it would have this beneficial result, at least, that when the drug agreed it would keep the patient quiet and comparatively comfortable during the tedium and ennui of the first week or so of the inevitable condemnation of the surgical patient to his bed.

But we must hasten on to say a few words regarding

THE CURATIVE TREATMENT OF SURGICAL FEVER.

This curative treatment of surgical fever may be divided into *local* and *constitutional* measures.

A. LOCAL CURATIVE MEASURES.

These are all so far antiphlogistic in their object, but include again two varieties—viz. 1. Measures directed to the primary wound or lesion; and 2. Measures applied to any part or organ which may chance to become the seat of any of the secondary inflammations.

1. *Local Measures at the seat of the Primary Wound.*—I have already taken occasion to state to you that in instances of surgical fever the primary wound does not necessarily show any special or exaggerated amount of inflammatory action in it. In other instances there are appearances of the wound becoming over-excited and inflamed, if not before the surgical fever, at all events shortly after the

first rigor, and after the first symptoms of rise in the pulse and of heat in the skin. Surgical fever, as I have already tried to explain to you, consists essentially of a morbid or toxæmic condition of the blood, which produces as its double and contemporaneous effects, first, constitutional fever; and secondly, acute local inflammatory changes in various internal organs. Again, we found that this morbid or toxæmic condition of the blood was itself the result of the conjoint action of two morbific causes—viz. first, the absorption or entrance into the blood of some septic or zymotic material from the site of the primary wound; and secondly, the presence in the circulating mass of some effete or other organic matters accumulated in the blood, and ready to be thrown by the absorbed septic material into that state of organic decomposition, or at least, of organic alteration, which chemical pathologists tell us resembles fermentation, and which many of them believe to take place in all other specific febrile diseases. This septic poison of surgical fever, we saw good reason to believe, was certainly not simple pure pus, as many pathologists had imagined; for, 1. It was sometimes formed before suppuration had time to come on. 2. Pus was not secreted, as was at one time supposed, by the lining membrane of veins opening upon wounds, or attacked with phlebitis, and was not from thence passed into the circulation. 3. The white globules seen in the blood of surgical patients were not pus-globules, but the common colourless corpuscles of the blood. 4. The white matter found in the obstructed veins at or near the seat of primary wounds was not purulent matter, but only decolorised, changed, and broken-down blood. And lastly, I might have added, that when pure and simple pus has been injected experimentally, and in large quantities too, into the blood of the lower animals, it has not been found to produce the phenomena and lesions of surgical fever. At the same time the septic poison of surgical fever no doubt often co-exists with, and is commingled with, the purulent and inflammatory secretions of wounds; and possibly may sometimes arise from their decomposition, as when pus, etc., are long retained and confined between the lips or in the interior of a wound; and in experiments on the lower animals the injection of septic and decomposing pus into the circulation has led to symptoms during life, and lesions after death, analogous to, if not identical with, those of surgical fever. Generally, indeed, the septic poison of surgical fever would appear to be in some way a product of inflammatory action or secretion, derived either, first, from the bodies of other affected patients, and inoculated into the recent wound, as in the case of the contagious communication of surgical fever; or, secondly, and most commonly, formed in the site of the wound itself by some special septic change or decomposition in the inflammatory or organic products thrown out on the wounded surface. At all events, surgical practitioners have hitherto used no methods of preventing the inoculation and infection of the system from the wound, except by keeping the wound and its site under the action of local antiphlogistic measures. Hence, it is generally held by British surgeons that cases of surgical fever are more rare when wounds are treated simply with cold-water dressings, than when they are involved in warm layers of lint, straps, and bandages, and with healing ointments directly applied to them. Every means, perhaps, that we can use to produce union of the whole wound by the first intention, and prevent arising between its lips points of suppuration, ulceration, and gangrene (phenomena that actually occur at the site of every ligatured artery), are measures calculated to prevent the supervention of surgical fever. I am not aware that it ever does occur to any dangerous extent in any case of operation where the lips of a wound adhere entirely and in every point by primary union. When a wound shows marks of inflammation, however intense, surgeons seem usually to content themselves with dressings of cold water, or hot poultices, changing from the one to the other according to the feelings of the patient; or they medicate these applications with lead, opium, etc.; but they seldom or never apply any more direct local antiphlogistic measures, such as leeching, etc.; though perhaps the adoption of such more active antiphlogistic measures might sometimes be of benefit.

Before leaving this subject of topical treatment, let me observe that probably it may yet come to be a question whether local means, not exactly antiphlogistic, but consisting of specific prophylactic applications to the wounds themselves, may not, under some circumstances, prevent the chances of septic absorption and surgical fever. In the case of venereal chancre, this principle is constantly acted upon to prevent the poison being absorbed, and the constitution becoming affected; the free application of various substances to the primarily inflamed spot or chancre being generally acknowledged as sufficient to prevent the chances of constitutional absorption and taint, provided these ectrotic substances are used sufficiently early. Some continental pathological anatomists firmly believe that they can withstand in their own persons, and in those of their assistants, the chances of the absorption of septic matters introduced by dissection wounds of the hands, by washing these wounds with any acid, such as vinegar, etc. They hold that the poisonous matter in cases of these dissection-wounds is alkaline in its reaction, and is always sufficiently neutralised and destroyed by the free local application of acid washes. Would not applications on the same principle to surgical wounds be sometimes successful in preventing the accession of surgical fever? Lotions could be easily acidulated; and I have elsewhere tried to show that carbonic acid gas would perhaps form one of the most sedative, and one of the most rapidly healing applications to all kinds of wounds and sores. To wounds in their secondary putrescent or gangrenous stage, carbonic acid used to be applied by the older surgeons in the form of the yeast poultice; and to the same state of wound, solutions of chloride of zinc or lime, aqua chlorinata, etc., are applied by surgeons in our own day. It is alleged also that these chlorine preparations have been employed successfully in neutralising the septic poison of dissection-wounds. In relation to the prophylaxis of surgical fever, the question is, whether acid, chlorinated, or other antiseptic applications employed in the first days or hours of primary wounds, would not in some cases, and under some circumstances, neutralise or destroy any septic poisons in these wounds, and prevent the mischances of surgical fever arising in patients who are the subjects of these wounds.

2. *Local Antiphlogistic Measures at the seat of the Secondary Inflammations.*—When these secondary inflammations light up at some distance from the primary wound, as in the chest, in the synovial membrane of one of the large joints, etc., the patient is seldom in such a state of power and strength as to bear much antiphlogistic treatment in the way of leeching or cupping. If you then use local antiphlogistic measures at all, you will generally find more advantage, in the case of affected joints, by applying warm sedative lotions of lead and opium, and placing and fixing the affected part so that it should be maintained in a state of absolute rest; or by employing there, and over the large cavities when attacked, rapid and extensive counter-irritation with turpentine, iodine, solid nitrate of silver, or chloroform. In cases of toxæmic fever, complicated with disseminated inflammations—as smallpox—the topical inflammations are liable, as we have already seen, to localise themselves almost altogether upon any part debilitated by previous inflammation or injury. Does not this fact afford us the true rationale of the action of blisters in most acute inflammations, dependent, as most of these inflammations are, upon some state of

toxæmia? Would not early, free, and full cutaneous counter-irritation localise and determine to the external surface the inflammatory effusions in some cases of surgical fever? There is one condition in which antiphlogistic measures are sometimes pushed further in surgical fever—viz., where, as in our first patient, inflammatory action springs up on the general surface of the peritoneum after operations on the pelvic or abdominal organs.[*] In this instance there seems a general belief that we may sometimes safely and successfully push our local antiphlogistic measures, as leeching, counter-irritation, etc., to an extent that would do harm rather than good to secondary surgical inflammations under other circumstances. In such a complication at the present day, general bleeding would scarcely be dreamt of. But yet, as I have shown you in another part of our course, in the analogous peritonitis of lying-in women, Dr. Armstrong and Mr. Hey were so wonderfully fortunate as only to lose nine cases out of eighty-nine, or one patient in ten, in epidemic puerperal fever, by adopting this practice at the very first commencement of the malady.

B. CONSTITUTIONAL CURATIVE MEASURES.

B. CONSTITUTIONAL MEASURES.—For only one type of fevers—viz. intermittent fevers—have we aught to wield in the way of a specific; for to their poisonous influence, as you know, quinine and arsenic are antidotes almost as certain as any that we have in toxicology. On the other hand, against surgical and other forms of fever, medicine has, as yet at least, nothing whatever that is specific to offer. Most or all of these fevers have a tendency to run through a determinate and definite course, and if we can keep our patient alive, and without any mortal damage amidst the internal machinery of the body, till that course is terminated, his life is preserved. To attain this fortunate end, we have generally a number of secondary indications to follow. Let me attempt to point out to you briefly what these indications chiefly are in the special case of surgical fever.

FIRST INDICATION.—*To obtund and reduce the irritability of the Nervous System.*—Perhaps opium, in some form or another, is the drug that, on the whole, is most frequently used in the treatment of surgical, and its analogous disease, puerperal fever. It is especially had recourse to whenever any of the concurrent secondary local inflammations are particularly severe, and give rise to much pain and distress. Under these circumstances, there is sometimes almost apparently a tolerance of this remedy; and then it seems to act as a general supporter and stimulant, while by obtunding the nervous system it saves the patient from the depressing and dangerous effects which mere local pain produces upon a febrile patient. Even when there are few marked symptoms of local inflammation in the disease, if the patient bears opium well, and without sickness and vomiting, he may be kept under its influence for days in a passive and vegetating state, if we may so express it, while the disease runs through its course and comes at last to a favourable end. When given in surgical or puerperal fever, opium should be exhibited, not in large doses every twelve or twenty-four hours only, but in repetitions of small doses every few hours, so as to maintain a steady narcotic action. In this way you are certainly not so liable to produce that sickness and vomiting which unfortunately drives us too often from the continuance of this plan. Dr. Kelly, Dr. Clarke, and other American practitioners, have carried out the plan itself to an extent never, I believe, attempted by European practitioners; and, it is averred, in some bad and almost desperate cases of puerperal fever with the highest success. They give the opium in repeated, but at the same time in such large doses, as to affect even the respiration of the patient, and to reduce, and keep reduced, the respiratory movements eight or ten times below the natural standard. In some instances they have kept the patient in this state for days, and till the feverish action was worn out. Of course such treatment would require great care, and constant watching of the patient.

Other narcotics besides opium, as belladonna, henbane, etc., have sometimes been tried, particularly where opium unfortunately disagreed with the patient; but none of them have proved equally beneficial.

SECOND INDICATION.—*To subdue the Excitement of the Heart and Vascular System.*—This indication looks far too mechanical in its principles, though it is a well-known fact that great excess of rapidity in the movements of any machine is always dangerous, as being liable to damage and ultimately break down its mechanism. As, however, the over-excitement of the heart and vascular system in surgical fever principally results from the irritation of the morbid materials contained within the blood itself, the indication I allude to might be, perhaps, most correctly referred to our next head—viz., the artificial elimination of these morbid materials from the circulating system. But I speak of it as a separate indication, because in reality various medicines have been proposed and used with the view of reducing the rapidity of the pulse, some of which are eliminatory in their action, and others not. Colchicum and digitalis, for example, have been employed; and both of them exert a depurating action through the kidneys, as well as a direct depressing action upon the heart. One medicine has of late been supposed to produce this sedative effect on the heart, without exerting any other appreciable therapeutic action. I allude to aconite, a strong tincture of which has been employed by various European surgeons in surgical fever; but it is difficult to regulate it in its effects, and in many persons it produces an almost dangerous and depressing effect, even in very small doses. Some of our American brethren have latterly been using extensively, in febrile, inflammatory, and nervous diseases, a new and potent drug belonging to this class — viz., the veratrum viride. Its effects have been described by Dr. Osgood, Dr. Norwood, Dr. Barker, and other practitioners. They tell us that they find that by exhibiting in repeated doses a concentrated tincture of the veratrum viride, they can reduce the pulse and keep it reduced with a certainty and to a degree which can be effected by no other drug. Dr. Barker and others have published cases where they have thus brought down the febrile pulse in a few hours from 140 beats to 80, 60, or less in the minute, and kept it at will at this lower standard. It is a drug altogether which is certainly entitled to the strong attention of European practitioners. And it is not merely an arterial sedative. It is at the same time apparently a powerful depurant, stimulating the action of the skin, kidneys, and secretory functions generally. It has been successfully used as a depurant in active gout and rheumatism, instead of colchicum. The veratrum viride is an American plant; but I think, from what I have seen, that we may fulfil the same therapeutic indications with the species which is in all our European pharmacopœias—the veratrum album. As the different species of cinchonas depend for their therapeutical effects in ague, etc., upon their all containing one and the same principle—namely, quinine—so in all likelihood the different species of veratra depend for their therapeutical effects upon a principle common to all members of the genus—namely, veratrine. Many of the old Greek physicians trusted often in chronic diseases, as Aretæus, Oribasius, and others tell us, to a course of hellebore after they had failed in curing their patients by other plans of treatment. The researches of Dr. Adams leave little or no doubt that the white hellebore preparations of the Greeks were derived from the veratrum album. It will be curious if, in the cyclical changes to which medicine is even subject, we now turn back after 2000 years to the ancient "helleborism," or hellebore cure of Hippocrates and his successors. They had recourse to it, however, principally in chronic affections, as insanity, epilepsy, neuralgias, dropsies, etc. American practitioners have, on the contrary, been using the veratrum viride, or American hellebore, as Dr. Wood terms it, principally in acute diseases, as in pneumonia and other forms of inflammation, in puerperal and other forms of fever. Let me allude to one other drug before leaving the present indication. Chloroform when given in full doses, either by inhalation or by swallowing, depresses and brings down the rate of the pulse. In any surgical patient operated on under a complete dose of this drug, you will find the pulse sunk from 90 or 80 to 70, 60, or less. I have taken advantage of this action of chloroform in some instances of disease. The first case I used it in was the following:—A lady, whom I saw with Dr. Scott of Musselburgh, was attacked with peritonitis after abortion. The peritonitis was so very acute and severe, and all the accompanying symptoms so very formidable, with a weak and scarcely perceptible pulse racing above 150, that I had little or no hopes whatever of the patient surviving. At her own request, to relieve her from her great abdominal pain, she was placed under the influence of chloroform; and when so, Dr. Scott and I found the pulse sank down to 100 or less, and became stronger and steadier. We found further, that, as long as the action of the chloroform continued, the pulse continued thus greatly lowered in rate, and improved in power. Hence we agreed to keep her for a time continuously under chloroform; and in consequence of the evident good results, she was retained upwards of sixty consecutive hours under its influence. By the end of that time the great abdominal tenderness and tympanitis were almost entirely reduced, and the patient in an infinitely more satisfactory and hopeful state than when she first breathed the chloroform. The pulse never rose again to any very high rate; and all danger was over. But you cannot obtain the same beneficial and sedative influence upon the excitement of the heart from chloroform in all patients; or, to state the fact more correctly, you will find it difficult in some, and impossible in others, to regulate its dose so as to keep up its continuous depressing action on the heart, without sickness, vomiting, and other symptoms, coming on in such severity as to force you to leave off its use and have recourse to other means and other indications of treatment.

THIRD INDICATION.—*To depurate the blood.*—This, doubtlessly, would be by far the most important indication of all, if we had the means of fulfilling it with anything approaching to perfect certainty and accuracy. As it is, we constantly try to accomplish this indication in practice in surgical and in other fevers, and by a variety of means and channels. There are various channels in the economy by which superfluous and deleterious matters are thrown off from the blood. Some may be thrown off by the skin by the use of diaphoretics, or excreted through the intestinal canal and chylopoietic viscera by purgatives and mercurials. Perhaps a combined antimonial and ipecacuanha emetic is one of the most powerful depurants, and most powerful alteratives too, which can be employed in the earliest stages of febrile action. Occasionally it will prevent or cut short an attack of continued fever, for instance; and in some varieties and types of puerperal fever it seems to act most beneficially. After a surgical operation leaving a large wound, many would fear giving an emetic lest the consequent retching and succussion of the body would too much disturb the wounded part; but the same objection does not hold good in reference to rigor and other commencing symptoms of surgical fever following any of the minor forms of surgical operation.

Hitherto two emunctories—the skin and intestinal mucous surface—have been chiefly used as artificial eliminatories by medical practitioners in most forms of fever; and preparations of antimony, calomel, various aperient and diaphoretic salts, and various vegetable purgatives, have been long used, and still are used, in endless combinations, with this intention. But, perhaps, there are other channels of elimination of as great, if not still greater, practical value. Much of the effete carbonaceous matter of the body in a state of health is eliminated or burned off at the lungs; and in some diseased conditions any excess of such matters might probably be got rid of in the same way, provided we were acquainted with some means of exciting this elimination artificially. But the subject has not yet, so far as I know, excited in any sufficient degree the attention of therapeutic inquirers; though we have ample evidence to show that various medicinal and poisonous substances when introduced into the body are exhaled, in part at least, from the pulmonary mucous membrane. Most of the nitrogenous excreta from which the blood requires constantly to be cleared pass out of the system through the kidneys. This remark holds true of the body in health: and perhaps, it holds equally true of the body in disease. And when we remember that a large part of the morbid materials liable to be accumulated within the blood in febrile and other diseased conditions are highly azotised, the importance of the renal organs as a channel for the depuration of these morbid materials at once becomes evident. In fact, in the treatment of surgical and some other forms of fever, "renal purgatives," if we may use such a term, thus become in practice more important even than intestinal purgatives. We have various medicines that can with more or less certainty depurate the system by increasing the eliminative activity of the kidneys. In surgical, and still more in puerperal fever, some eliminative diuretics have acquired great reputation in the hands of various practitioners from empiric observation only, and without their mode of action being considered. Let me merely enumerate, as a specimen, acetate and nitrate of potass and other diuretic alkaline salts, spirits of nitric ether, colchicum, oil of turpentine, and tincture of the muriate of iron; which last drug has sometimes appeared to me under these circumstances to act both as an excellent renal purgative, and in part also to fulfil the next indication for treatment which I have to speak of, viz.—

FOURTH INDICATION.—*To sustain the vital powers of the patient by stimulants, etc.*—As surgical fever advances to its height, this always becomes a most clamant and important indication. Sometimes, under apparently the most desperate circumstances, the steady and methodic use of stimulants will enable you to pull your patient through. You are not utterly to lose hope of doing so in almost any case, unless, what too often happens, the stomach becomes so irritable as to reject all sustenance in this way. This irritability may be sometimes cured, and still more frequently prevented, by the free and frequent swallowing of small pieces of ice, a drug not entered in the pages of the pharmacopœia, but one more useful in reducing febrile action than the thousand medicines that are to be found in our apothecaries' shops. Be assured also that by far the best and most manageable form of stimulant is wine or brandy; and do not run the risk of upsetting the patient's stomach and losing your last chances of saving him by having recourse to lengthy medicated mixtures and prescriptions as stimulants. If you add any form of nutritive material to the stimulant, let it be of the simplest kind, as the whites or albumen of three or four eggs beat up in half a tumbler of cold water; which at once makes a nutritive and by no means disagreeable drink.

The time of commencing the stimulating treatment is to be regulated by two circumstances,—by the patient's strength beginning to fail, and by the good effect or the reverse of the first dose or two upon the patient's pulse, and other symptoms. If an error is committed in regard to the time of their exhibition, that error, I think, is oftener that they are begun too late than too soon. Some patients benefit by them from a comparatively early stage; nor does their employment prevent or counteract the effect of almost any of the other sets of remedies which I have mentioned. They may be used, for instance, along with opium or the various depurants, as alkaline salts or the muriate of iron; and sometimes those medicines that reduce the excitement and rapidity of the heart do not appear to exert their specific influence till they are combined with some amount of stimulant. Thus my friend, Dr. Barker, in some of his interesting published observations on the veratrum viride, remarks, that while it will most surely reduce the quickened pulse of inflammation and irritation, "its use is not incompatible with that of stimulants. Experience has abundantly demonstrated the truth of this apparent paradox. One patient who recovered took, every hour for two days, one ounce of brandy, and three to ten drops of the tincture of veratrum viride, the quantity of the latter being determined by the frequency of the pulse, which was never allowed to rise above 80 per minute, although it sometimes fell down to 40. In another case the veratrum viride did not seem to produce any effect on the pulse, which remained steadily above 130, until the condition of the patient was such that I decided to give brandy. After the first ounce was given, it fell to 108; after the second to 86. Continuing the brandy, the veratrum viride was suspended for a few hours, and the pulse again rose to 130. After this," adds Dr. Barker, "it was curious to note the fact that, if either agent was suspended, the pulse would rapidly increase in frequency, while under the combined influence of the two, it was kept below 80 per minute."

LECTURE XXI.

ON PHLEGMASIA DOLENS.

GENTLEMEN—I wish to speak to you to-day of a disease that is by no means infrequent among puerperal women, and which has been treated of under many different designations. It has been named Phlegmasia Alba, Phlegmasia Alba Dolens, Œdema Lacteum, White Leg, and, finally, Crural Phlebitis. I wish to direct your attention to this subject now, because some of you have had an opportunity of observing it in a case in our ward, where the disease presented itself in an unusual form, and with some peculiar modifications. Let me first of all read to you the history of the case, as it has been drawn up for me by my clinical clerk :—

"E. A., aged 40 ; admitted February 7, 1859 ; married nineteen years. Has had five living children, and three miscarriages. The last miscarriage occurred nearly two years since. The last child (a girl stillborn) was born on January 3 of this year. Her labour was a tedious one, and was attended during its first stages by a considerable amount of hemorrhage ; but she had no flooding afterwards, and states that the lochia have been very scanty, as also the mammary secretion. She remained comparatively well until the thirteenth day after delivery, when she first noticed a tenderness of the popliteal space behind the left knee, which tenderness gradually increased in extent towards the ankle, but did not affect the thigh. The leg below the knee began to swell, and at last became tense and painful on all sides. A discoloration of the back of the leg now began ; and the veins over the calf and towards the ankle became hard, tender, and swollen. Fomentations were applied to the part, and bran poultices as soon as the swelling began to appear.

"The first day on which the swelling and discoloration were noticed she was affected with rigors two or three times a-day, and these have continued ever since. She has had no pain in the right leg, back, or groin. She is unable to keep the left leg straight. The swelling and inflamed veins extend from the popliteal space to within two inches of the ankles ; very tender. The foot pits slightly on pressure ; bowels costive ; appetite bad ; pulse 120. Sleeps pretty well ; has an anæmic appearance. No tenderness over the abdomen. To have hot fomentations constantly applied to the part, and tinct. ferri muriatis, gutt. xx. thrice daily. Passes plenty of urine.

"February 10.—Complains of great pain in the calf of the leg, frequent rigors and sleeplessness. Bowels very costive. To have a dose of aperient medicine occasionally. There is a feeling of fluctuation about the centre of the discoloration, and great tenderness on pressure. To continue the fomentations.

"13th.—An incision was made into the suppurative swelling, and more than sixteen ounces of pus escaped, mixed with a little blood. To continue the fomentations.

"15th.—The discharge of pus still continues; the pain has disappeared, but there is still great tenderness on pressure, and inability to extend the leg. Ordered, ferri et quinæ citratis gr. ij. ter die. Pulse 89.

"22d.—The suppuration has ceased almost entirely, and but little tenderness remains, except at the upper part of the swelling, near the popliteal space. To have bandage and water-dressing.

"March 8.—Patient continues to do well; the pain, swelling, and tenderness are rapidly disappearing. Has had no rigors for eight days, but complains of much weakness. To take potassæ chloratis ʒij., aquæ bullientis ℥ij., a tablespoonful three times a-day; and tinct. ferri muriatis, gutt. xx.

"15th.—The external wound completely healed."

SYMPTOMS AND DIAGNOSIS.

The disease of which this is a modified instance has long been well known to the profession, and has formed the subject of many valuable essays. It consists of a general, tense, white, elastic, hot and painful enlargement or swelling, occurring in one or other of the lower extremities, most frequently in the left. In three out of every five cases it is the left leg that is first or alone affected. This intumescence of the limbs is usually preceded by marked febrile symptoms; at least, in more than one half of the cases of phlegmasia alba dolens which come before you, you will find that your patient has had pain and a rapid pulse, and all the usual phenomena of fever before the swelling of the leg set in, and in many the disease only comes on after a previous regular attack of puerperal fever. But, on the other hand, you will meet with a few cases where there will be no apparent premonitory febrile symptoms, and the affection of the leg will be the first condition to attract your notice, and to alarm your patient. In some cases this swelling that I speak of begins high up in the extremity, at the upper part of the thigh, and then goes downwards; in others again, and more frequently, it appears first of all lower down, on the back of the foot or in the calf of the leg, and progresses upwards to the thigh. In one patient in the ward it was limited to the lower portion of the extremity, and in this respect was peculiar. Perhaps the symptom of the disease which is usually first complained of by the patient, is pain in the calf of the leg. There is in most cases no swelling at first until such pain has been felt; but after this has lasted for some time, the swelling begins, and goes on steadily increasing till the limb has become greatly enlarged, it may be to double its normal size. The skin gets more and more distended, and becomes white and glistening (and hence the designation phlegmasia *alba*), and this distension generally goes on to such a degree that at last the skin will scarcely pit on pressure. Indeed, this elasticity of the skin is one of the marks of distinction between this affection of the leg and ordinary anasarca; for in this last the skin readily receives and retains the impression of the finger. In nearly every case of phlegmasia dolens there is at first an increase in the temperature of the affected limb, sometimes to a very considerable degree. Then there is a loss of all muscular action in the limb, which lies stiff and motionless. While there is thus a decrease in the motory powers amounting to a kind of semi-paralysis, there is an increase in its sensory power leading to pain, occasionally limited in locality and not severe in degree; but in other cases so great as to cause much suffering, and to render the disease in its truest sense a phlegmasia *dolens*. The affection is not always confined to the limits of a single limb, for not unfrequently it attacks both legs simultaneously; or, after having shown itself for a time in the one, it may extend secondarily to the other also. Phenomena precisely resembling those that I have been attempting to describe are occasionally met with in other parts of the bodies of puerperal patients. I have seen the disease attack one of the upper extremities and prove fatal. Much attention has been bestowed upon the condition of the lochial discharge in the case of patients affected with phlegmasia dolens. In some instances the discharge has been found to be very fetid, and in many it ceases altogether when the disease sets in, or when it has become established; but occasionally no noticeable variation can be detected. Then, as regards constitutional symptoms, you will find that the pulse is rapid, and generally, at the same time, small and feeble; commonly the tongue is white and moist; the face presents a pale, chlorotic appearance; the urine is muddy, with an abundant deposit of lithates; and perspirations are apt to be frequent and profuse. The disease is not confined to females in the puerperal state, but has been found to occur in connection with various diseased conditions, as cancer of the uterus and mamma. I have seen it produced by the ligature of a uterine polypus, etc. In some rare instances it has been met with also in men, as after continued fever; after lithotomy; in cases of phthisis. When occurring in connection with parturition, the period of its attacks may be very various, as shown by the tables of Dr. Lee, who found that out of twenty-two cases the disease began in eight of them between the fourth and fourteenth day after the termination of labour, while in fourteen it did not set in till after the second week. The symptoms usually begin to abate in about ten days from the commencement of the disease; but they rarely disappear until after a fortnight, and in some cases they remain even for a longer period. Even after the essential phenomena of the disease have been dispelled, however, there may result various morbid conditions, such as tumefaction and debility of the limb, thickening or induration of the cellular tissue, and a varicose state of the superficial veins, which may retard the convalescence of the patient for an indefinite period. In many the affected limb remains weaker, and occasionally somewhat more swelled than the other limb, for years, or even for life, the circulation through it never recovering its perfect freedom and force. In a case where both legs were affected, and probably the lower part of the vena cava obstructed, the patient told me that in bathing, the lower half of her body always became so discoloured as to form a strong contrast with the upper half. In some rare cases gangrene of the limb has ensued; and you have an instance of a more common, but still rather rare complication, in the case of the patient in the hospital, in whom an abscess formed in the leg, and gave rise to a long-continued purulent discharge.

PATHOLOGICAL ANATOMY AND PATHOLOGY.

Passing over many points which have given rise to much discussion, not always of a very high practical import, let me just state briefly, with regard to the pathological anatomy of phlegmasia dolens, that obstructive inflammation of the veins of the affected limb is one of the phenomena most constantly observed on post-mortem examination. In 1822, the late Dr. Davis, Professor of Midwifery in University College, London, published some cases in the *Transactions of the Medico-Chirurgical Society*, in which he had found the femoral and iliac veins impermeable and filled with firm coagula of blood. Shortly afterwards, Bouillaud published some similar cases; and since then, Velpeau and others have frequently observed and recorded the occurrence of obstructions of these particular vessels. In 1829, Dr. Lee pointed out that the femoral and iliac veins were not the only vessels in which the obstruction and inflammation occurred, but that the venous inflammation commences in the uterine branches of the hypogastric veins, and subsequently spreads from them into the iliac and femoral trunks of the affected limb. Some cases have been observed, on the other hand, by Casper, Rigby, Fraser, Smeets, Jacquemier, and others, where in patients dying of phlegmasia dolens, no morbid change or obstruction could, it is averred, be detected in the femoral or other larger veins of the affected extremity. "Many authors of modern times," observes the late distinguished obstetrician, Professor Kiwisch of Wurzburg, "have, as well as myself, found the veins perfectly healthy in cases of the most strongly-marked phlegmasia dolens." Hamilton and Ramsbotham have paid particular attention to the swelling and inflammation of the lymphatic glands, which is not unfrequently to be found in such cases, and to which they attributed the swelling of the limb, and most of the other symptoms; while Bouillaud and others have laid more special stress on an inflamed state of the lymphatic vessels as an essential anatomical condition of the disease. Dugès, again, averred that he had discovered the nerves of the affected limb to be altered and inflamed; Albers, Hankel, and Siebold, maintained that it was primarily a disease of the nerves of the extremity; and Dr. Burns published some cases, as cases of puerperal neuritis, but more, perhaps, from the intense pain which attends the disease in some instances, than from any particular pathological change in the nervous cords. In many cases, at all events, where very great pain has been experienced in the course of the disease, there has been no corresponding anatomical alteration of the nerves discovered after death.

Various opinions have been entertained at different times as to the pathological nature of phlegmasia dolens. It is unnecessary for me to do more than merely mention to you some of the principal hypotheses.

1. *Retention of the Lochia.*—Mauriceau believed that the disease depended on a suppression of the lochial discharge, and a subsequent determination of it to the affected limb.

2. *Metastasis of Milk.*—In his first *Memoir on Lacteal Deposits,* Puzos ascribes all the phenomena observed in cases of phlegmasia alba to a deposit of milk in the part; and Levret, in referring to such cases, accepts and indorses the doctrine of Puzos, that the disease is essentially due to a metastasis of milk. This opinion was more commonly received than the former, and a supposed confirmation of it was derived from the fact, that when the limb was punctured a turbid serum was occasionally drawn off, which in some degree resembled milk; but, on the other hand, the serous fluid which escapes is most frequently, perhaps, quite clear at first, and afterwards coagulates like the ordinary serum of the blood.

3. *Rupture of Lymphatic Vessels.*—In the beginning of this century Mr. Trye of Gloucester wrote an essay on the subject, in which he attempted to prove that the phenomena of the disease were all to be traced to a rupture of the lymphatic vessels at the brim of the pelvis, allowing of the escape of lymph into the cellular tissue, and its gravitation downwards into the limb.

4. *Obstruction of Lymphatic Vessels and Glands.*—Dr. White, on the other hand, tried to show that the disease was due to an obstruction in the lymphatic vessels and glands, leading to an accumulation of the fluids below the obstructed part.

5. *Inflammation of Lymphatic Vessels and Glands.*—According to a fifth theory, which numbered among its supporters such men as Ferrier, Gardien, Capuron, Hamilton, etc., phlegmasia dolens consists essentially of an inflammation of the lymphatic vessels and glands of the diseased limb.

6. *Phlebitis.*—I have already mentioned to you that Dr. Davis had pointed out the frequent occurrence of crural phlebitis in connection with this disease. The conclusion to which his observations led him was, that the obstruction of the principal vein of the limb was its essential phenomenon; and many eminent authorities have held the same doctrine, differing only in this—that some have maintained with Davis that the phlegmasia was due to inflammation of the femoral veins; while Lee and others have held that the disease originated in the uterine and hypogastric vessels.

7. *Inflammation of all the Tissues.*—Hull, Dewees, and others, finding it difficult to account for the phenomena of the disease by the affection of any particular texture, came to regard it as an inflammation of all the textures of the limb. Lastly, seeing that no one of the local manifestations of the disease, nor all of them combined, sufficed to explain its nature and peculiarities, attempts have been made by some authors to trace the

ORIGIN OF PHLEGMASIA DOLENS IN BLOOD-DISEASE.

In 1844, M. Bouchut first expressed the opinion that phlegmasia dolens was due not to a primary inflammation of the veins, but to a coagulation of blood in them resulting from some peculiar change in the quantity of the constituent elements of the blood, which rendered it specially liable to become coagulated. But it is to the observations and investigations of Dr. Mackenzie that we are indebted for the first distinct enunciation of the doctrine, that primarily phlegmasia dolens is a blood affection, and the confirmation of it by careful experiment and research. Indeed, Dr. Mackenzie's admirable essay on *The Pathology of obstructive Phlebitis, and the nature and proximate cause of Phlegmasia Dolens*, is one of the best experimental monographs which we possess on any subject in obstetrics. In that essay he shows, first of all, from experiments on the lower animals, that while simple obstruction of the crural veins will readily produce, as has been long shown, a certain degree of œdema in the limb below the obstructed point, yet that it is not in itself sufficient to give rise to all the phenomena essential to a case of phlegmasia dolens. For the phenomena of that disease are not confined to the mere effusion of a serous fluid into the cellular tissue of the limb, such as may occur in any case of anasarca; but, as I have already told you, the œdema, which is much greater in degree than you ever find resulting from venous obstruction, is complicated with great tension and exalted temperature of the diseased member, usually with increased sensibility and pain in it, and frequently also with more or less complete paralysis. Various experimenters have tied the femoral vein, and have succeeded in producing obliteration of it in many different ways, but without producing any of the peculiar phenomena of phlegmasia dolens. No increase in the heat of the limb has resulted, and no tension, tenderness, or impaired mobility; nothing further than a slight degree of œdema, partial and passing.

Then, after showing that obstruction of the femoral vein by means of a ligature is not sufficient to produce phlegmasia dolens, Dr. Mackenzie goes on to prove that the excitement of inflammation in that vessel, and the production of coagula in it of some extent, are likewise incapable of producing the peculiar phenomena of that disease. In this set of experiments the veins were subjected to a considerable extent to the effects of a compressing agent, or had some hitherto unexplained changes set up in their walls by the introduction of pieces of bougie into their interior, or the application of a solution of nitrate of silver. Take the last of these morbific agencies as the means for making the experiment, and what results are obtained? The femoral vein is ligatured at a certain point, and an opening being made above it, a piece of lint steeped in a solution of nitrate of silver is applied to the whole interior of the veins to a certain distance. The blood is allowed to return immediately, and the opening in the vein closed up. The animal gets a little œdema of the limb—the usual result of venous obstruction, but it has none of the characteristic symptoms of phlegmasia dolens. After death, the vein is found to be filled throughout an extent corresponding exactly to the extent of surface to which the irritant had been applied, with a coagulum of blood, or rather with a mass of firm blood in the condition which, in his late able treatise on the pathology of the blood and blood-vessels, my friend, Dr. Wise, has described as consolidated, from the circumstance that no separation has occurred between the serum and fibrine of the blood during the progress of this "consolidation," but the whole commingled elements of the blood have contributed to the formation of this solid plug. This consolidated blood is in such a state as to show that the change had begun in it immediately after the application of the irritant; and yet that application was so rapid, and the blood was allowed to return so quickly, that there was no time for the development of inflammation in the walls of the vein, or, at all events, of such a degree of it as would account for this remarkable and sudden change in the blood. And, mark you, the experiments of Virchow, Meinel, and others, all go to prove that the lining coat of the veins is incapable of undergoing any of the higher grades of the inflammatory process, or of giving out on its free surface any of the usual inflammatory products, such as coagulable lymph or pus, and that the only changes of this kind which it is capable of undergoing are such as tend to its mortification and destruction. In the description which some obstetricians have given of false membranes and pus in the interior of the femoral and other veins in phlegmasia dolens, they have mistaken for these products, on the one hand, the sphacelated interior coat of the vessel, or the firmer layer of consolidated blood seen on the outer surface of the obstructing plug; and, on the other hand, the broken-down, decolorised, and disintegrated blood seen in the interior of the plug, where the process of softening first commences, and which presents an appearance that might readily lead to its being mistaken for pus. When, then, in the lower animals, obstruction is produced in the largest veins of a limb, either mechanically or chemically, and their cavity becomes filled up with clots of consolidated blood, a certain degree of œdema is produced in the limb below, but it never becomes the seat of over-distension, exalted temperature, or paralysis. In other words, obstructive phlebitis confined to the large vessels of a limb does not suffice for the production of a phlegmasia alba dolens in that extremity.

The conclusions derived from experimental investigations are only further confirmed by the clinical observation of those rather rare cases where the larger veins of a limb have become the seat of a distinct degree of inflammation during life, and have been found after death to be filled up and occluded by a mass of consolidated blood. I show you a preparation of obstructed aorta and iliac and femoral arteries which will give you some idea of the general appearance of these obstructing plugs of consolidated blood, and which was taken from a lady who had suffered for some time from obstructive disease at the orifice of the aorta, and in whom the aortic valves were found to have been covered with a mass of warty excrescences, or vegetations. During the puerperal month, some of these excrescences had got loosened and detached from their seat, and being carried along in the circulating fluid, they passed through the aorta and became arrested and impacted, some of them in the femoral arteries, and others higher up in the iliac arteries and at the bifurcation of the aorta. In all of these vessels, but chiefly in the left femoral artery, they gave rise to the usual effects of such emboli—viz. first, to obstruction of the vessel and the formation of a coagulum to some distance, and secondly, to inflammatory changes in the arterial coats. But in this case the mischief went farther, and the contiguous femoral vein became the seat of a secondary inflammation, in consequence of which its walls were thickened and its calibre came to be obstructed with consolidated blood to the extent of two inches just below Poupart's ligament. Was there any symptom of phlegmasia dolens developed here? Not at all. There was nothing in the least degree approaching to phlegmasia dolens; and the patient's symptoms were carefully watched throughout by Dr. Moir and myself. Such a case proves distinctly that there may be a large coagulum in the principal vein of a limb, obstructing its course effectually and extensively, without giving rise to the phenomena of phlegmasia dolens, and that to produce this disease something more is necessary besides a simple crural phlebitis.

But, on the other hand, when means were taken in the experiments made upon animals to produce coagulation or consolidation of blood not only in the largest veins of a limb, but also in a number of their branches of the third or fourth order of size as well, then something more than mere œdema resulted, for the heat, swelling, tension, and paralysis, characteristic of phlegmasia dolens, all became developed in a very marked degree. Consolidation of blood, then, in the whole plant of veins coalescing to form the tributaries of the femoral gives rise to the development of phlegmasia alba dolens to an extent corresponding to the number of vessels in which the consolidation of blood has been effected. Observation of the effects of obliteration of the veins in the human subject leads to the same conclusion. As in the experiments on the lower animals, so in man, obstruction of the femoral vein alone does not suffice for the production of phlegmasia dolens; while obstruction of a large number of its primary constituent branches is always attended by the development of phenomena precisely similar to, if not identical with, those which we regard as pathognomonic of phlegmasia dolens.

Still the question remained as to what it was that could lead to the consolidation of blood in the veins to the extent usually observed in this disease. To solve this question, Dr. Mackenzie, after having first shown that the extensive obstruction of the veins necessary for the development of the characteristic phenomena of phlegmasia dolens was not producible by merely local causes, such as injury or inflammation of these vessels; and that simple irritation of the lining membrane of the veins was alone sufficient for the production of such an amount of obstruction—after settling those two points, I say, Dr. Mackenzie proceeded to make another series of experiments in order to ascertain the effect of the direct introduction of various irritating matters into the circulating fluid. Lactic acid was the agent from the injection of which he obtained the most definite results; and by throwing some of this fluid in a dilute form into the femoral vein above a ligatured point, he found that coagulation of the blood was produced for a considerable distance towards the centre of the circulation, involving in some cases a considerable extent of the vena cava inferior, and producing a corresponding degree of obstruction in these vessels. When the animals on which such experiments had been made, were killed at a sufficiently early period, however, it was found that the process of consolidation had begun in the surface of the column of blood in contact with the venous wall, and that it had not taken place simultaneously in the entire column within the vessel; thus showing that the action of the irritant had been primarily upon the interior of the vessel, and through this, secondarily, upon the blood. But the effect of the lactic acid was not confined to its action on those vessels with which it first came into contact. Its action upon the interior of the veins immediately above the point of its introduction was, of course, strongest and most direct, because it was applied to them nearly pure, and but slightly diluted by admixture with the blood, on which it seems to have exerted no immediate influence; and by the time that it arrived at the upper portion of the inferior cava (in the case of it injection into the femoral vein), the poison had become so diluted and dispersed through the mass of the circulating fluid that its action on the vascular surfaces over which it passed was rendered impossible, from the rapidity with which it was hurried along through the heart and arteries in its now less concentrated condition. But the effects of the irritant reappeared so soon as it was carried to a point in the vascular system where the circulation was less rapid, and where it was thus allowed to remain for a longer period in contact with the interior of the vessels; and as the flow of the blood was necessarily retarded in the plant of veins contributing to the formation of those large vessels in which the first action of the poison in its undiluted form had led to the primary obstruction, it was precisely in these tributary veins that it was detained for a length of time sufficient to enable it, in its now diluted form, again to exert its irritating influence upon their inner wall, and so to lead to a second consolidation of the blood and obstruction of the vessels containing it. These secondary obstructions were not entirely confined, however, to the vessels behind those primarily obstructed; they were repeated at all points where the circulation was weakened or retarded by other means, as, for example, by ligaturing of a vein. But in all cases where lactic acid was injected, let us say into the right femoral vein, and obstruction of the veins above was produced, obstruction was also found to have resulted in the smaller veins of the same thigh and leg, to such an extent as to lead to the development in it of all the usual symptoms of phlegmasia dolens. I would beg here again to remark, that it seems essential for the production of this disease that obstruction should have taken place in a large number or series of the veins of minor size, more than in the leading or principal veins of the limb; and we can account for the occurrence of such cases as have been recorded by Casper, Smeets, Rigby, etc., who found the femoral vein itself to be sometimes free, by supposing that the obstruction had in these instances been confined to the smaller vessels, where its presence, however, would be readily overlooked. From all Dr. Mackenzie's observations and experiments, therefore, it seems probable that phlegmasia alba dolens is essentially due to the presence of a morbid material circulating in the blood, and exerting such an influence on the internal surface of the veins as leads to consolidation or coagulation of the blood which they contain. Whether or not that morbid matter be lactic acid, which Dr. Mackenzie has shown to be capable of producing all the phenomena of the disease when introduced into the blood artificially, and which he seems inclined to regard, in some cases at least, as the possible cause of the disease, is a matter that remains for future chemical investigation to determine. Probably various morbid matters may be capable of leading to this effect. But there is this one fact to be noted in regard to the disease, and perhaps I ought to have called your attention to it previously—namely this, that the blood of the puerperal female is in a condition which peculiarly predisposes it to coagulation within the blood-vessels. There are two diseases in which this proneness of the blood to coagulation has been specially observed; and it is in patients affected with them that we most frequently meet with cases of endocarditis and of fibrinous deposits on the cardiac valves. These are rheumatism, and Bright's disease of the kidneys; and as in them so in the puerperal female the blood is in the condition described as hyperinosis; that is, there is an increase in the quantity of fibrine in the blood, and a diminution in the number of red corpuscles. In the only instance which I know of on record, of the analysis of the blood in phlegmasia dolens, Becquerel and Rodier found the fibrine double its natural quantity, and the blood-corpuscles diminished. In the puerperal patient matters are rendered still more complicated, and the proclivity to disease still further increased by the circumstance that in her constitution great and important changes are at the time taking place, such as the degeneration and the resorption of the hypertrophied uterine mass, and the establishment of the new mammary secretion, in consequence of which the blood becomes loaded and deteriorated by the introduction of a quantity of effete organic material. In short, the blood is so altered as to render the patient peculiarly liable to spontaneous coagulation of blood in the blood-vessels, or, as it has been called, thrombosis, and all its consequences. Among these consequences falls to be reckoned the disease which we have under discussion, and of which the peculiar phenomena become developed when the thrombosis occurs in a sufficiently large number of the minor veins of any part. But modern pathology teaches us that, in the first instance at least, this venous coagulation, consolidation, or thrombosis, may arise without any previous inflammation of the veins, which at first are simply obstructed and occluded by the plug of consolidated blood; and if the external coats of the veins are found with evidences of inflammatory changes after death, these inflammatory changes may in general be correctly regarded as secondary phenomena, and the inflammation of the venous walls which led to them as a second result produced by the irritation and pressure of the contained thrombosis, and by the changes which take place in the obstructing mass. So that, if this doctrine be true, phlegmasia dolens does not arise from phlebitis properly so called, but is immediately due to obstruction of the veins by coagulated blood, and any resulting phlebitis is a secondary consequence only. This coagulation of the blood and obstruction of the veins may, in their turn, depend on one or other of two causes—viz. either, first, on some morbid alteration in the blood itself, tending to its consolidation or coagulation; or, second, on some morbid condition in the lining membrane of the veins, in virtue of which the relation between the blood-vessels and the blood becomes disturbed, and coagulation of the latter is induced. I believe that in some cases of phlegmasia dolens this required morbid condition in the lining membrane of the veins may be primarily due to phlebitis, as where the veins of the uterus have been inflamed, and the inflammation, having extended by continuity to the iliac vessels, has led to coagulation of blood in the veins below. But in the great majority of cases it seems to me that we must look for the primary cause of the disease in some morbid condition of the circulating fluid, leading first of all, perhaps, to some peculiar change in the lining membrane of the veins, and through this, secondarily, to coagulation of the blood, occlusion of the vessels, and obstruction to the circulation in the limb.

LECTURE XXII.

PHLEGMASIA DOLENS—ITS PATHOLOGICAL NATURE *Continued.*—ITS TREATMENT.

GENTLEMEN—In the remarks which I have already made on the pathological nature of phlegmasia dolens, I have endeavoured to show you that the disease could not be justly considered as merely and simply the result of the obstruction of the principal vein of the affected limb, by the occurrence of acute inflammatory exudations on the free surface of the lining membrane of that vein. I alluded to the experiments of Meinel and Virchow as proving that the supposed inflammatory exudations thrown out in the interior of the crural vein in cases of phlegmasia dolens are not inflammatory exudations at all. I ought to have added, that their experiments were of the following kind.—They isolated portions of the veins in the lower animals by two ligatures, emptied the vessels between these ligatures, applied various irritants to the free surface of the lining venous membrane, and failed entirely in exciting that surface to throw out either coagulable lymph or pus. The outer surface of the lining membrane of veins and its more external coats are liable, like other parenchymatous tissues, to exude coagulable lymph and pus, when excited to the necessary degree of inflammation; but, apparently, the free surface of the lining membrane of the veins has no such power. We saw further, that the supposed inflammatory exudations found in the interior of the femoral vein in phlegmasia dolens, and usually described as layers of effused coagulable lymph and specimens of pus, were, so far, spurious inflammatory appearances resulting from the various changes which go on in the blood itself when it is spontaneously or accidentally arrested in venous tubes by coagulation or thrombosis.

Further, that phlegmasia dolens is not merely *crural phlebitis* is evident from the two facts:—1. That, as we have already seen, no inflammatory obstructions whatever of the femoral vein itself have been observed by several high obstetric authorities in some important exceptional cases of fatal phlegmasia dolens, where they had an opportunity of making a due post-mortem examination; in these exceptional cases the thrombosis being, as I ventured to suggest to you, probably confined to the smaller plant of veins in the affected limbs; or possibly the disease being sometimes produced by obstruction in the lymphatic system of the diseased extremity, though any adequate and decisive proof of this doctrine from either experimental pathology or morbid anatomy is still wanting. But while thus, in some rare cases of phlegmasia dolens, the interior of the crural vein has been found healthy and unobstructed, proving that the supposed cause may be absent while the alleged effect is present, we know, on the contrary — 2. From experiments on the lower animals and from observations on the human subject —that the supposed cause may be present and yet the alleged effect be not produced. In other words, when the femoral vein is inflamed and obstructed, and crural phlebitis induced, phlegmasia dolens does not always follow.

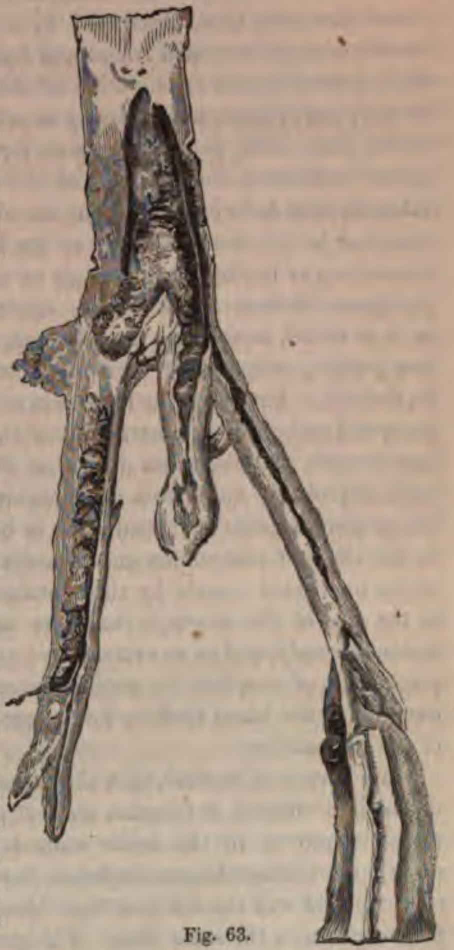


Fig. 63.

In the lower animals when the femoral vein is tied, and thus inflamed and obstructed, œdema generally comes on to some degree, but not a tense, general, painful, hot, semi-paralytic swelling of the limbs, such as is characteristic of phlegmasia dolens. I stated to

Fig. 63. Obstruction and inflammation of the lower part of the aorta, and of the iliac and femoral arteries, resulting from the impaction of emboli in their interior, with secondary inflammation and obstruction of the femoral vein.

you also that, in the human subject and in the puerperal state, I had seen a case of inflammatory obstruction of the femoral vein throughout an extent of two inches without any œdema or swelling whatever of the extremity. The femoral artery was, as I mentioned to you at the same time, obstructed by a travelled cardiac embolism. In this case my esteemed friend and former assistant, Dr. Priestley, made a most careful examination of the parts after death, and tried to trace any change, inflammatory or otherwise, in the nerves of the limbs, that could possibly account for the great pain which the patient suffered in the affected and obstructed extremity for a considerable time before death. But no alteration whatever could be observed in the femoral nerve or its branches. I think the fact interesting as bearing on the origin of the pain so often present in phlegmasia dolens. That pain is sometimes so severe and extreme as to have led, as we have already seen, to the idea that the disease was possibly complicated occasionally with, if it did not originate in, neuritis. But the great local pain occasionally present in cases of puerperal embolism, or obstruction of the arterial tubes of a limb, and in cases of phlegmasia dolens or obstruction of the veins of a limb, is probably owing to a common cause of a different kind. For the proximate cause of the suffering in both diseased states seems to be the effect of obstruction and over-distension of the coats or tube of the implicated vessels, by the contained consolidated blood; and in the case of the artery, it has been in some instances produced instantaneously, and in an extreme and excessive degree, by throwing perchloride of iron into the arterial tubes with the view of suddenly coagulating the blood in them for the cure of aneurisms in the course of the extremities.

We have seen, further, that the pathological origin of phlegmasia dolens in a vitiated or toxæmic state of the blood, was so far experimentally proved in the lower animals by a diseased state, very exactly resembling phlegmasia dolens, being induced when a solution of lactic acid was thrown into their blood. Clinical observation so far corroborates the same view. Phlegmasia dolens is an affection apparently always preceded by morbid states, more or less vitiating and altering the constitution of the circulating fluid. In one remarkable case, in 1842, I saw a patient die of phlegmasia dolens of the left upper extremity, some weeks after delivery, and where the circumstances were as near as we ever can possibly find in practice to the experiment on the lower animals of mixing the blood with some vitiating material. The patient to whom I allude had laboured, about a year before becoming pregnant, under a very severe attack of rheumatic endocarditis; and during the latter months of utero-gestation, she suffered greatly from attacks of difficult breathing, which amounted sometimes to orthopnœa. After her delivery, which was effected with the aid of the long forceps, and was attended with severe and exhausting hemorrhage from partial presentation of the placenta, she seemed for a time to recover satisfactorily. But symptoms of irritation afterwards supervened, and during the second week after her confinement embolism occurred in the right humeral artery, and no pulse could be felt in that arm below the elbow. In the course of a few days the pulsation gradually but feebly returned in the right radial artery, but the embolism recurred first in one and then in the other leg. By and by, symptoms of phlebitis began to be developed in various parts of the body; and finally, about five weeks after delivery, the patient sank under a fatal attack of phlegmasia dolens in the left arm and left side of the face. After death the emboli were found to have come from the valves of the left side of the heart, which were profusely covered over with small wart-like excrescences; and it would appear in this case as if the softening and disintegration of the plugs in the obstructed arteries had led to the introduction of a quantity of detritus into the circulating fluid, which acted as a toxæmic agent, and gave rise to all the subsequent phlebitic or thrombotic phenomena.

The patient, whose history I have just related, affords you an instance of that unusual class of cases where phlegmasia dolens occurs in one of the upper extremities. To this fact I have before adverted, and I have told you also that the disease is more common in the left than in the right lower limb. But if the disease be essentially a general blood-disease, as we have seen reason to believe it to be, it forms a very legitimate subject of inquiry to determine why its local manifestations are confined in such a remarkable and striking degree to one part of the vascular system, viz. to that of one of the lower extremities, and that extremity usually the left. Now I believe that the answer to this question will be mainly found in the fact that the coagulation of the blood, which is the immediate cause of all the other phenomena of the disease, is most likely to occur whenever the circulation is slowest; and if you examine the state of matters more narrowly, you will find that in the majority of cases those causes which lead to retardation of the flow of blood in the blood-vessels in a puerperal female must necessarily come to operate more on the veins of the lower than of the upper extremities, and most on the veins of the left lower extremity. There may, certainly, be other causes in operation as well which might suffice to account for the coagulation of blood in the veins rather than in the arteries, and in the veins of the left leg rather than in those of any other part of the body. Thus, if the veins left open on the inner surface of the uterus by the separation of the placenta, be capable of absorbing or admitting into them septic or poisonous materials from the interior of that organ; and if these materials have, as such morbid materials generally have, the power of causing coagulation of blood in the blood-vessels, it is precisely in the veins of the left side of the pelvis, and in the veins of the corresponding extremity, that we would expect to find the first and greatest effects of their morbific action, because the placenta is, as you are aware, most frequently attached to the left side of the uterus, and after its separation it is into the veins running into the left uterine and pampiniform plexus that the morbid material would at first find access. Then, again, it is a matter of uncertainty how far phlegmasia dolens may not be caused by a primary change of an inflammatory nature in the veins; but if the disease depend in any case on a primary phlebitis occurring in the uterus, and extending backwards by continuity to the veins of the pelvis and the thigh, we would naturally expect to find this also taking its origin among the veins in the left side of the uterus from which the placenta had been torn. All veins, like the torn uterine veins at the site of the placental attachment, which have been wounded or injured, or otherwise morbidly weakened in any way, seem, as a general pathological law, to be far more liable than the other healthy veins in the economy to be the seat of thrombosis or consolidation of the blood in their tubes, under any such constitutional toxæmia or diathesis as predisposes to this thrombosis or blood-consolidation. But as I have said, it is to the delay offered in a great degree to the circulation of the blood in the veins of the left lower limb, that we must chiefly turn in endeavouring to account for the peculiar proneness which that member presents to be attacked with phlegmasia dolens. The causes which contribute to bring about this delay are, perhaps, mainly three. First of all, the great dilatation which occurs in the pelvic vessels during pregnancy, and which is not done away with instantaneously after delivery, tends to cause a retardation of the circulation in the veins of the lower extremities; and this, besides the general normal slowness of the venous circulation in the lower extremities, will suffice to explain why the disease in question should be more common in these than in the upper extremities, although it will not account for its greater frequency in the left than in the right leg. The explanation of this point, however, will be seen if you compare the relation of the right and left iliac veins; for you will find that, secondly, the left iliac vein is the longer, and is crossed, and more or less pressed upon, by the termination of the aorta, or by the right common iliac artery. Then, thirdly, the rectum lies in the left side of the pelvis, and by the pressure which it exerts more or less constantly on the veins of that side, the circulation of the blood below will be retarded, and its consolidation in the vessels greatly favoured. I believe that for these reasons you will find that phlegmasia dolens is relatively as frequent in the left limb, compared with the right, when the disease occurs in non-puerperal patients, as when it takes place after delivery. But it is now time that I should proceed to say something about

THE TREATMENT OF PHLEGMASIA DOLENS.

As in the treatment of all other diseases in which we have to do with constitutional symptoms and local lesions, the indications for the treatment of phlegmasia dolens resolve themselves into the two categories of—1st, General; and 2dly, Local remedies; and in following out both classes of indications you will find that there are three principal rules to be attended to. Among the

A. General Indications,

1st, *Depuration of the Blood* holds the first rank. The importance of this indication must be at once admitted, if you have been convinced of the correctness of Dr. Mackenzie's observations and the truthfulness of his deductions. If there be abnormal and deleterious matters present in the blood, which have a peculiar action on the veins, tending to the coagulation in them of the circulating fluid, then it is clearly a matter of prime importance to get rid of these morbid substances at once, so as to prevent the occurrence of coagulation altogether; or, at least, to arrest and check the process when once it is begun. From this point of view this means of treatment must be regarded as being almost as much prophylactic as curative in its nature. Trye tells us, in that paper to which I have already adverted, that he never lost a patient out of those whom he had seen with this disease; and this success he deemed to be due to the practice which he always adopted of administering an emetic as the first part of the treatment of every case. The shock produced by the emetic has a powerful effect in checking the progress of the malady; but probably the chief virtue of the remedy lies in its action as a most efficient depurant of the blood. At the outset I believe there is no better means of arresting the disease than by the administration of an efficient and gentle emetic of any kind, provided the state of the patient does not forbid its administration, and especially in cases where exposure to cold has acted as the exciting cause. But if that fails, or is contraindicated by the debilitated condition of the patient, then we must try to purge and purify the blood by exciting the various organs of elimination to increased activity by means of their appropriate stimulants. Hence the value of the various diuretics, diaphoretics, and purgatives, in the early stage of the disease. Many practitioners are in the habit of giving for the first day or two of the attack a mercurial purgative combined with ipecacuanha or antimony, using in this way both the intestinal and cutaneous surfaces as eliminatory excreting organs. But these, or any analogous therapeutic means, must not be pushed so far as to produce any very debilitating effects. Small and repeated doses of alkaline salts given in such quantities as to act upon the kidney, and if necessary, also on the skin and bowels, are perhaps, as the general rule, both more safe and more efficient -- as bicarbonate, acetate, nitrate or tartrate of potass; conjoined, when required, with wine of ipecacuanha or antimony, or with some aperient tincture. Besides these salts of potass, the analogous diuretic and aperient salts of soda are generally held to have the effect of impeding, preventing, or arresting any morbid tendency in the blood to coagulate spontaneously, and of tending powerfully to the dissolution of these coagula when once they have taken place. In one patient chlorate of potass was used, and in addition tincture of the muriate of iron was employed, both as a renal depurant and as a tonic.

2d. *The use of Antiphlogistics and Febrifuges.*—General antiphlogistic measures are by many practitioners held to be indicated in the first stage of phlegmasia dolens when the pulse is high and strong, and the general symptoms of fever prevail. But if employed at all, they should, I believe, be rarely or never employed to any heroic degree. Formerly phlegmasia dolens was regarded as an affection which very seldom indeed proved fatal; and the strongest antiphlogistic measures employed by the authors who have reported it as such were little or nothing more than local blisters at the groin; or these preceded by moderate local leeching. Perhaps, when the history of phlegmasia dolens is fully written, it will be found that the danger and mortality attendant upon the disease have been increased since venesection and other heroic antiphlogistic measures were resorted to in its management, under the idea that it was purely and radically an intense local inflammation of the lining membrane of the large veins of the affected limbs. In almost all cases of phlegmasia dolens, you will find the pulse much quicker, and more or less marked symptoms of fever present. But the best febrifuges which you can use are the depurants of which I have already spoken; and usually the time soon comes when you must, in preference, have recourse to

3d, *The Administration of Tonics and Stimulants.*—As the disease frequently runs a tedious course, and is often asthenic in character from its first beginning, the use of this class of remedies is indicated in most cases from an early period, and their use generally requires to be assiduously persevered in. It takes a long time to undo the effects of the changes in the nutrition of the limb consequent on the occlusion of so many of its blood-vessels, and while the process of absorption is going on and the tissues are gradually becoming restored to their normal condition, it is necessary to keep up the patient's strength by the judicious administration of tonics and stimulants, in addition to proper food. It matters little, in most cases, what special remedies of this class you employ; but wine, and the preparations of iron and quinine, are the constitutional remedies which you will find to be most frequently had recourse to in the second stage of phlegmasia dolens.

B. The Local Indications

may likewise be classified under three divisions, viz.—

1st, *The use of Local Antiphlogistics.*—Means must be adopted to subdue the inflammation which is set up in the veins, whether this arise primarily from injury or disease of their walls, or secondarily from changes resulting from the primary distension and subsequent softening process that occurs in the occluding thrombus. The patient usually complains of much pain and tenderness on pressure along the course of the filled and cord-like iliac and femoral vein; and under the idea that the disease was fundamentally and primarily inflammation of the femoral veins, most practitioners have been in the habit of ordering one or two dozen leeches along the inside of the affected thigh; and after the bleeding consequent on the application of the leeches had ceased, the use of a series of blisters was strongly recommended by some of the older authors. What formerly I have usually done was to apply leeches at the outset, and afterwards to paint the track of the femoral vessels all over with tincture of iodine. Latterly, I have seen several cases where little, or indeed no active local antiphlogistic measures of this kind were adopted; and I believe these cases have progressed as well, or indeed better, than where I followed the usual plan of local leeching and blistering. Perhaps these antiphlogistic measures ought to be reserved for cases where secondary inflammation comes on in the walls of the veins, as a result of the distension and irritation of these walls by the contained and disintegrating plugs or columns of consolidated blood. Then, to relieve the pain, you will require often in this disease to employ opiates internally and freely; and you must have recourse, further, to the use of fomentations. One of the best and most soothing measures that you can adopt for this purpose is to wrap the limb in a wet towel or in a sheet of dry cotton-wadding, carefully and completely covered with oil-cloth to prevent the escape of the insensible perspiration. I believe you will find an application of this kind to be the best of all poultices; an ordinary poultice—say, of bread and milk—although at first several degrees warmer than the part to which it is applied, falls to the same temperature in a very short space of time, and then its continued soothing effect seems to depend entirely on its power of keeping in the insensible perspiration. But such also, as I have said, is precisely the *modus operandi* of the wadding enveloped in oil-cloth; and this application has one advantage over the poultice, that while the latter requires to be very frequently renewed, the former may be left unchanged for an almost unlimited period. I am seeing just now, with Dr. Moir, a lady suffering from a very smart attack of phlegmasia dolens, coming on after delivery, who has derived the greatest relief and comfort from the use of cotton wadding rolled all round the limb, and completely surrounded by a covering of oil-skin cloth. In this case the wadding has been taken off every twenty-four hours, and a fresh piece applied. If the pain of the limb is very severe, apply sedative liniments and applications with or without the fomentations, or in a permeable covering. As local sedative liniments, you may use equal parts of olive oil and laudanum; or two parts of olive oil and one of chloroform; or the common opiate liniment of the pharmacopœia. With all this the limb must be kept at perfect rest. The limb itself is usually very much paralysed, and motion in it is almost impossible; but the patient must be enjoined to keep perfectly quiet, and to abstain, as much as possible, from moving any part of the body. There is another local measure of the highest moment, and one you must not overlook—viz. position. The proper position is elevation of the limb, which frequently gives very great relief from pain, and always favours at the same time the process of resorption. In truth, position is one of the most powerful means in the treatment of many diseases. Attention to this point is frequently of more importance, and affords more satisfactory results, than the use of any kind or quantity of drugs. It is usually attempted to secure elevation of the limb by placing it upon a pillow, but this means is not always very satisfactory, as the limb readily rolls off whenever the bed comes by any chance to be moved or shaken. A better way is to raise all the lower half of the mattress, by placing something underneath, so as to make the limb lie on a sort of inclined plane, and in a position from which it cannot too readily be moved. Elevation of the limb in this manner not only tends to afford the patient the most effectual relief from her suffering—it is also of most essential importance in aiding us to carry out another local indication for treatment, that, viz. according to which we endeavour

2d, *To promote Absorption.*—After the inflammatory stage has fairly passed over, it behoves us to try to bring about a reduction in the size of the limb by stimulating and promoting the process of resorption, so as to bring back the limb to its normal state. By careful and constant elevation of the limb, as we have just seen, much may be done to favour the absorption of the effused matters; but its effect may be greatly aided and increased by the firm support afforded by a flannel bandage applied pretty tightly from the toes upwards. Frequent frictions, the use of stimulating liniments, and the occasional application of a small fly blister to the groin, are also important adjuvants in the fulfilment of this indication. Dr. Dewees, Dr. Meigs, and other American practitioners, strongly recommend, indeed, the free and repeated use of friction of the limb with sedative liniments even in the earlier and most acute stage of the malady, and totally envelope the extremity, in the intervals between the frictions, in flannels wrung out of a hot mixture of equal parts of vinegar and water. When the swelling has been reduced you require

3d, *To endeavour to restore the Power of the Limb.*—The limb may remain weak and almost powerless for some months, or even for a year or two, or for life. To restore to it its proper power, you will be obliged to have recourse to such local tonics, if I may so call them, as frictions, bandages, and the use of warm douches, which must all be persevered with for a lengthened period. Sea-bathing, and all means calculated to restore and invigorate the general health, will also have a beneficial action on the weak extremity. Local stimulants, such as galvanism, may be applied to the limb itself; but its power will never be completely restored until the patient has begun to use it, and accustom it to frequent exercise.

LECTURE XXIII.

ON SPURIOUS PREGNANCY, OR PSEUDOCYESIS.

GENTLEMEN—the author of the two remarkable dissertations on *Diseases of Women*, usually published among the hippocratic treatises, when at one place treating of displacement and stricture of the os uteri, takes occasion to remark that sometimes under such circumstances "the menstrual fluid is determined to the mammæ, and produces their enlargement; the abdomen swells, and inexperienced patients believe themselves to be pregnant; in truth," he continues, "they present all the phenomena usually seen in women at the seventh or eighth month of utero-gestation; the belly attains a proportional degree of enlargement; the breasts swell up, and milk seems to be secreted. But when this period has passed, and the full term of pregnancy should be complete, the mammæ shrink up and diminish in size, the abdomen likewise collapses; all trace of the milk disappears, and the abdomen sinks in, and all tumefaction is dispelled."

The diseased state described in the preceding quotation is that state usually spoken of as the state of "spurious pregnancy." In his *Nosology*, Dr. Mason Good proposed to describe this peculiar affection under the corresponding Greek name of "Pseudocyesis" from ψίυδος, a lie, and κύησις, pregnancy. We have lately had two examples of this disease among patients visiting the female ward. One of the patients, who remained in the ward for a short time, suffered from suppression of the menses, continuing for a period of three or four months, and alternating with a state of menorrhagia; she had occasional sickness; the mammæ were slightly enlarged, and the abdomen somewhat protuberant. She suffered, in short—but not in a well-marked degree—from this morbid condition of spurious pregnancy. In the other patient, who was under the medical charge of one of the students of the class, not only were all the usual phenomena of pregnancy well-marked for the usual time; but, what is far less frequent, there latterly supervened all the common phenomena of labour; but of labour without any result, as the uterus was quite empty.

There are two varieties of pseudocyesis or spurious pregnancy, a *local* and a *constitutional*. The former I have already described to you as seen in those cases of dysmenorrhœa where the patient has occasionally, or even at every monthly period, excessive development of the mucous membrane, which becomes vascular and swollen, and is in part shed off in the form of a separate membrane, resembling in every respect the decidual membrane which is formed in the early weeks of every real pregnancy. In such cases the patients usually suffer a great deal of pain during the expulsion of these uterine casts, and they are sometimes affected with some of the ordinary constitutional and sympathetic phenomena of pregnancy. Thus they frequently are troubled with sickness and vomiting; the mammæ sometimes become enlarged, and the areolæ darkened for one or two weeks both before and after these dysmenorrheal membranes are thrown off. The most striking features of the disease in such cases, however, and the most distressing symptoms depend upon the local changes in the uterus; and as I have already discussed these, both as regards their pathology and treatment in my lecture on Membranous Dysmenorrhœa, I need say no more about that subject now, but pass on at once to the consideration of that more frequent form of spurious pregnancy, of which the more striking phenomena are all of constitutional origin, and the disease true, or

CONSTITUTIONAL PSEUDO-CYESIS.

In this constitutional or sympathetic variety of spurious pregnancy, then, there may be no appreciable local change whatever; but the patient suffers from nausea and vomiting, and the other sympathetic phenomena common to pregnant females. The mammæ become enlarged, the areolæ are darkened, and the gland gives forth its milky secretion. The abdomen enlarges gradually until it occasionally comes to assume the form, and size too, of an abdomen which contains a gravid uterus, and the patient feels movements in its cavity, which she unhesitatingly pronounces to be movements of a fœtus. Menstruation is usually pretty methodic, but you will occasionally find it altogether suppressed for a time, or only coming on very irregularly, and with a scanty flow. All these symptoms may arise and go on slowly and progressively for a period of nine months, or longer, and the patient may labour under the delusion that she is in the family way, until, it may be, symptoms set in resembling the ordinary efforts of labour, and then, when a medical man is sent for to attend at the delivery, it may happen that she first discovers she has never been pregnant at all.

FREQUENCY OF THE DISEASE.

Before I proceed to point out to you more particularly the nature of this disease, and to tell you how it is to be recognised and treated, let me first of all remark that it is a disease which, when you come to practise, you will find to be of far more frequent occurrence than the comparative silence of our obstetric text-books on this malady would lead you to infer. It is not by any means confined to the married, or to those who have borne children, but is seen among the unmarried and childless as well. Among the former, however, it is more frequent; and there are perhaps few women in married life who have not presented more or less marked symptoms of it once or oftener. The disease, as we have seen, was known of old, and is duly noticed in the Hippocratic writings. But in modern times Medical writers have passed it by in almost complete silence; and the only notice of any importance in regard to it that I know of in the English language, is to be found in the admirable and classical work of my friend Dr. Montgomery on the *Signs and Symptoms of Pregnancy*,—a work which I beg strongly to recommend to your careful perusal, as a volume not less remarkable for its great accumulation of original and collated facts than for its logical statements and reasoning, and its elegant and classic style. Yet, as I say, cases of spurious pregnancy are constantly occurring in practice, and patients often go about from one practitioner to another seeking relief, or desiring to obtain some certainty as to the nature of their affection, a point in regard to which they are often in the greatest doubt. They fancy themselves, for the most part, to be pregnant; but sometimes they suppose themselves to be subject to very different kinds of disease, as in the case of a patient from the West Indies, whom I have under my care just now, and who, it was there imagined, had some hydatids in the uterus.

To show you how difficult it is to distinguish cases of simple spurious pregnancy from other forms of disease, let me merely tell you one fact. Six different cases have been put upon record, where patients have been supposed to be labouring under ovarian disease; and in these six cases, when the abdomen was laid open with the view of removing the ovarian tumour, there was found to be no tumour there—nothing unusual or abnormal, except, perhaps, a slight degree of distension of the bowels. Such needless tampering with the lives of patients may suffice to impress upon you the dangers of making a false diagnosis, and teach you not to neglect any means by which you are likely to obtain a clearer insight into the nature of this often obscure and puzzling form of disease.

TIMES OF ITS OCCURRENCE.

As to the period of life when it is most likely to be met with, Dr. Montgomery thinks that it occurs most frequently at the climacteric period, when the catamenial discharges cease to appear, and when the female constitution seems to become more liable to be affected by morbific influences. But I feel pretty certain that the disease occurs at least as often during the first year after marriage as at any later period. At least, you will find, on making inquiries of patients, that they have very often been deceived into the belief that they have become pregnant at the time I refer to, from the temporary suppression of the menses, attended with sickness, and some degree of swelling of the abdomen; but, probably from the circumstance that the delusion is not usually kept up for such a length of time in these patients, they do not so often come under the observation of the practitioner, and are thus very commonly altogether overlooked. Spurious pregnancy, however, may occur at any period during the catamenial life, and it is often enough developed during the intervals between two successive real pregnancies; and a succession of attacks is sometimes seen in the same individual.

MAY THE DISEASE OCCUR IN THE UNMARRIED?

Certainly, and then it constitutes a very delicate class of cases. When occurring in the unmarried, it is usually set down as hysteria; but sometimes all the characteristic phenomena are most distinctly indicated, and it is then a very difficult and delicate matter to answer the patient's inquiries regarding her disease. No one would choose to speak to the patient or her friends of "spurious pregnancy" under such circumstances, as the mere name itself would be sufficiently offensive. Perhaps the descriptive designation proposed by Dr. Good of pseudocyesis would save sometimes the practitioner from difficulty—when hard pressed as we sometimes are—to give our patient's affection a proper name. That the affection may occur in the most moral persons, however, and in virgins, is certain; and if any confirmation were needed, it would be found in the fact that it has sometimes been seen among a class of females as to whose morality and state no question can be raised, namely, the females of our domestic animals. Harvey pointed out long ago in his celebrated work on *Animal Generation*, that "over-fed bitches which admit the dog without fecundation following, are nevertheless observed to be sluggish about the time they should have whelped, and to bark as they do when their time is at hand; also to filch away the whelps from another bitch, to tend and lick them, and also to fight fiercely for them. Others," he goes on to say, "have milk or colostrum, as it is called, in their teats, and are, moreover, subject to the diseases of those which have actually whelped; the same thing is seen in hens which cluck at certain times, although they have no eggs on which to sit. Some birds also, as pigeons, if they have admitted the male, although they lay no eggs at all, or only barren ones, are found equally sedulous in building their nests." I had a patient in the neighbourhood of Edinburgh, who used to keep a seraglio of female dogs, and was interested in observing their habits and physical characteristics. This person was a careful observer, and told me that every year, and occasionally twice every year, some of these "over-fed bitches" had all the symptoms of pregnancy, although they had been kept secluded from all male society. And the phenomenon so often spoken of, of animals without any offspring of their own, adopting and nursing the young of other animals, belonging sometimes to an entirely different class, is, doubtless, only one of the forms in which this peculiar affection may be manifested.

Mistakes from it among the Married.—But though the disease may thus manifest itself among unmarried females, it is chiefly among the married that the more marked instances of it are met with; and awkward enough are the mistakes into which those sometimes fall who are affected by it. I have repeatedly known ladies make all the usual preparations for confinement, secure the services of a nurse and medical attendant, lay in a stock of baby-clothes, and, in short, have everything in readiness for the birth of a child, when they were in reality not pregnant at all. They may sometimes even be put to very great inconvenience in consequence, breaking up their large establishments in the country, and coming into town at most unseasonable periods, in order to be under the immediate care of their usual accoucheur. I have thrice had ladies come into Edinburgh to be confined under my care, leaving establishments, who, when they came to town, proved not pregnant. A striking instance of this kind occurred in the practice of my predecessor, Dr. Hamilton, who was engaged, not very long before his death, to attend a lady in her approaching confinement. As the expected period drew near, a heavy fall of snow came on and blocked up the roads, and the lady, terrified at the idea of being detained in her country house, had a number of labourers set on to cut a driving-path through the snow; but it was unnecessary work and trouble, as the case was only one of spurious pregnancy. Such mistakes oftenest occur in patients pregnant for the first time, and who are inexperienced as to the phenomena and sensations of pregnancy. But the affection is by no means limited to them. You will frequently enough in practice find women who have previously borne children making such mistakes about themselves, and imagining that they feel every movement of the child just as they have done in real pregnancies. In some cases, but they are much more rare, you may have the phenomena of spurious parturition as well as spurious pregnancy. That is, when the ordinary term of nine months has been completed there may supervene the phenomena of a common labour. The ordinary preliminary symptoms are first seen, the pains set in, at first irregular, slight, and resembling the pains characteristic of the first stage of labour, and gradually change into the regular, strong expulsive pains, characteristic of the second stage. The more complex phenomena of instrumental labours are even occasionally simulated. Dr. Labatt was once called to deliver a child by means of craniotomy, in a case where a medical practitioner had been in attendance for two days, and where, when he went, there was found to be no child at all. I myself was once sent for by one of the best medical students we ever had at this University, to perform the operation of version on a patient on whom he had been some hours in attendance, and which he fancied to be a case of unavoidable hæmorrhage. But turning of the child was unnecessary, as there was, in fact, no child to turn! The patient was suffering from menorrhagia as a termination of spurious pregnancy. There was a striking example of this disease in the hospital here a few years ago. The patient was sent in from a distance in the country to be delivered of a child, of which she had been supposed to be long in labour. Her medical attendant had had no doubt as to the reality of the pregnancy and the labour, and her husband who accompanied her to Edinburgh, had as little. Their belief was grounded chiefly on the distinctness and force of the movements of the supposed fœtus, which were so marked and strong as to lead the husband to maintain that if there was no child within his wife's abdomen, there must be some animal there! The case was seen by Drs. Moir, Weir, and several other medical men here, and all agreed that the movements were very deceptive; but on close examination they could be distinctly traced to the peristaltic action of the bowels. The uterus was perfectly empty. I have now seen two cases where the propriety of having recourse to the Cæsarean section was proposed in instances of spurious pregnancy. One of these has been fully and ably described by Dr. Keiller, in the *Monthly Journal of Medical Science.* In the other case, I was called to perform the operation on a woman who was dying of some chest disease, and who was believed to have in her womb a living child. But there was no pregnancy whatever.

These symptoms of labour may all recur once and again, even in the same patient, and yet her faith in the reality of her pregnancy may remain unshaken. It is, indeed, most curious to witness with what persistence some such patients, but by no means all, will maintain their belief. The idea that she is in the family-way has such a firm hold of the patient's mind, that it looks as if her brain were impregnated and not her womb, and sometimes no kind of argument suffices to make her change her opinion. You may, it is true, succeed in convincing her at times that her hopes are futile, and you may fondly imagine that you have succeeded in utterly dispelling her empty expectations; but two or three weeks, or only days afterwards, she will return to you as strongly impressed with the genuineness of her pregnancy as ever. No persuasion or eloquence of yours will almost ever lead her to give up her hope; time alone can prove to her how vain it is, and with some patients it takes a very long time too. I have known the idea obstinately persisted in even for years.

It is not always so easy as you may imagine to recognise a case of this kind, and to discriminate between a case of spurious and a case of real pregnancy, for in the former you will sometimes meet with all the individual and combined phenomena which are ordinarily developed in the latter, and which are usually regarded as characteristic of the pregnant state. The breasts are enlarged, and their areolæ darkened; the menses are often irregular or suppressed, and the abdomen is swollen; the patient suffers from morning sickness and occasional vomiting; and after a time she remarks peculiar sensations in the abdomen, which she unhesitatingly attributes to quickening, or the movements of a fœtus. I have said the abdomen is swollen; and let me add, this swelling sometimes imitates very exactly the defined form of the enlargement of the abdomen in true pregnancy; but usually it is more diffuse and less projecting forwards when the patient is laid supine; and in spurious pregnancy, let me add, there is often observed a symptom in the way of external configuration which is rarer in true pregnancy—viz. an appearance of unusual constriction in the region of the diaphragm, or where the chest and abdomen meet, so that the lower ribs look as if they were drawn inwards. All of these common symptoms of true pregnancy may be, and indeed often enough are, manifested in cases of spurious pregnancy; but you will often find, on making more minute inquiry, that there is some startling *exceptional* condition affecting one or more of them. Thus, menstruation is occasionally entirely suppressed—as completely so as in any true pregnancy; but in most cases, it is not entirely suppressed, but only irregular, appearing one month and absent the next, or coming on at irregular and unusual periods, or in some abnormal way. Again, the movements of the supposed child, if carefully investigated, are found to be different in some respects from the usual fœtal movements. They may first be perceived unusually early, or, on the other hand, at a period much later than that when the movement of real quickening should first be noticed; or they are felt higher up towards the diaphragm, or much further to one side than is ever the case with fœtal movements. And if you inquire of a patient in this condition of simulated pregnancy who has previously borne children, she will generally admit that the movements differ in character from those which she had been wont to feel when truly pregnant, although she had never paid any particular attention to these differences so long as she believed the sensations to be due to the stirring of a child within her womb. There is, I say, usually some irregularity in the form of some one or other of the leading individual symptoms, although the combination of them all apparently in perfection is at first very striking and extremely puzzling. You must make up your minds to meet, in many cases in the most distinct form, with some of the single symptoms which are looked upon as the most characteristic, and which are ordinarily supposed to be conclusive and incontrovertible evidences of the occurrence of impregnation. Thus the mammæ may undergo all the usual changes which occur in these glands during pregnancy, as happened to a very marked degree in the case of a patient whom I had under my care many years ago with retroversion of the uterus. This lady came to present almost all the symptoms of pregnancy, and the changes in the breasts, in particular, were extremely well marked. The mammæ swelled; their areolæ were darkened in colour and extended; the cutaneous papillæ became more pronounced, and the superficial veins enlarged and prominent. The lady, as it happened, was an excellent artist, and she made a sketch for me of the appearances presented at this time by the mammæ, making use of a mirror for the purpose. Dr. Radford, of Manchester, was in Edinburgh at the time, and saw the patient along with me. But I could not make out any enlargement of the uterus itself; and some of the other symptoms were not well marked. By and by, all the constitutional phenomena of pregnancy vanished, and thus showed that the pregnancy had only been a spurious one. Afterwards the same patient became really pregnant, and again she made a drawing of the appearances presented by the breasts, which were not a bit more tumid, and the areolæ of which were not a bit darker in shade or wider in extent, nor their cutaneous glandular follicles more enlarged than they had been when she had laboured under spurious pregnancy. One symptom connected with the mammary symptoms which is often present, and often greatly deceives, is the secretion of a serous, milky, or milk-like exudation, from the nipples. In some women, but not by any means in all, there is formed a milky secretion in the mammæ during utero-gestation; and sometimes even in the very early months of that state. When the mammæ, or rather the nipple and its vicinity, are compressed with the fingers, a portion of thin serous-looking lactescent fluid, escapes from the orifices of the milk-ducts, or it exudes spontaneously and without pressure, and on examining it with the microscope you will see the usual characteristic milk-globules in it. But I have seen these colostrum globules with the microscope in a case of spurious pregnancy as distinctly as they were ever seen in a case of true pregnancy. But marked and striking as these various changes of the mammæ in spurious pregnancy thus sometimes are, you will find that here, too, there is liable to be some irregularity in the symptoms. The secretion of the gland is not set up, or the enlargement of the mammæ is only slight or partial, or the darkening of the areolæ is not very deep or decided, or the glandular follicles of the areolæ are not correspondingly enlarged. Sometimes all the more usual phenomena of pregnancy are present in pseudocyesis, and each of these phenomena is far a perfect imitation of the same phenomena in the true state of utero-gestation; but their spurious character is brought out when you inquire into the order or succession in which these phenomena have appeared. Thus the patient sometimes observes the swelling of the abdomen or the quickening of the child before the suppression of the menses, and this inversion of the order of the symptoms at once puts you on your guard, and makes you more careful in your inquiries. Again, if you find a want of correspondence among the symptoms of pregnancy described by your patient, it will equally make you suspicious of her state; as, for example, if she spoke of having had the catamenia suppressed for six or eight months, and the feeling of quickening present for three or four months, and yet the mammæ were not enlarged, nor their areolæ and nipples in any corresponding degree altered and changed.

Again in pseudocyesis the liability to deception is greatly increased, and the difficulty of making a true diagnosis of the disease is often augmented by the imitation or repetition in cases of spurious pregnancy of individual peculiarities and special phenomena presented in former real pregnancies. Let me try to impress this fact upon you by stating some instances of spurious pregnancy in which there was presented such a

REPETITION OF SPECIAL IDIOSYNCRASIES,

seen in previous true pregnancies in the same patient. Some women, as you are aware, are subject during the course of utero-gestation, to peculiar discolorations or eruptions on parts of the skin; others to neuralgias in various situations; others, to increased secretion of some of the glandular organs; and others to the most remarkable changes in temper and habits. Indeed, there is no limit to the number of peculiar physical signs and functional changes which may be presented by women when pregnant; and when these come to be repeated in the successive pregnancies of the same individual—as is very frequently the case—they may very legitimately be looked upon—and frequently, indeed, they are regarded—as indices of the existence of that condition. But when such a patient happens to be affected with spurious pregnancy, this peculiarity may be repeated, and is then very likely to mislead alike the patient herself and the practitioner into the belief that the pregnancy is a real pregnancy.

Several years ago I saw, along with the late Dr. Taylor, a lady who showed all the usual symptoms of pregnancy; and who, at the same time, was covered over the greater part of the body with a papular eruption, such as she had invariably had in all her previous pregnancies, and never at any other period. Yet on a closer examination of that patient, she was found not to be pregnant at all; and the eruption, as well as all the other sympathetic changes, was only symptomatic of a state of pseudocyesis. I have seen a case of spurious pregnancy which was peculiar in this respect, that the subject of it had in her successive real pregnancies been troubled with a profuse salivation, which was reproduced along with the other changes in the spurious affection. I saw once a very singular case of spurious pregnancy, where a lady who had previously given birth to eight children, passed one period, and naturally thought she had again fallen in the family-way, because the breasts enlarged and began to secrete milk, while the abdomen became prominent, and she felt movements resembling those of the fœtus. On examining the uterus I found it to be perfectly normal, and only slightly ulcerated around the os; but the lady herself was firmly convinced that she was really pregnant, because, in addition to all the symptoms I have mentioned, she presented this further very peculiar one, that she lost great quantities of hair, and she had always had such a falling out of the hair in her previous pregnancies. This patient, let me just add, had a similar but less decided attack of spurious pregnancy before the birth of her third child. At the famous Gardner peerage trial, a woman, who followed the occupation of a monthly nurse, testified that she could always be perfectly certain of the exact date of her pregnancies from the fact that she fainted whenever quickening took place. Dr. Reid tells of this nurse, that she afterwards came to him as a patient, alleging that she was then seven months gone in the family-way, as she had fainted in the same way as she used to do, and had afterwards felt all the usual signs and symptoms of pregnancy. But on making a more correct examination, Dr. Reid found that she had deceived herself, for she believed that she was so far gone in utero-gestation when she was only labouring under an attack of spurious pregnancy. But the repetition or reproduction in an attack of spurious pregnancy of the exceptional and aberrant phenomena of real pregnancy does not end here. I have told you, that a case of spurious pregnancy may end in a kind of spurious parturition, the patient showing all the usual indications of being in labour; and in such a case, if the patient happens in previous real labours to have presented any special and peculiar phenomena, these are liable to be again produced in the course of the spurious parturition. Thus, Klein reports the case of a patient who had always been the subject of convulsions when in labour, and who became the subject of an attack of spurious pregnancy, ending at the usual period in a kind of spurious labour, which was also complicated with convulsions.

But, I repeat, however closely all the ordinary symptoms of real pregnancy may be represented and simulated in the spurious affection, and however minutely even the individual idiosyncrasies sometimes seen in the former may be imitated in the latter, there is usually some deviation from the ordinary course of events, and some difference in the character, order, or correspondence of the ordinary phenomena, which may serve to put you on your guard, and lead to the discovery of the true state of affairs. Such deviation or difference, however, is generally not of itself sufficient to enable you to decide upon the nature of the case, and you can only be sure that you have to do with spurious pregnancy by having recourse to the aid of

PHYSICAL DIAGNOSIS.

For this purpose you may avail yourselves of the assistance of—1. Auscultation; 2. Percussion of the abdominal swelling; 3. Of tactile examination of the uterus; and, 4. Of relaxation of the tense abdominal walls, by the use of chloroform or other anæsthetics.

1. *Auscultation* affords in pseudocyesis only negative results, or ought only to afford such. But I have seen more than one case of the disease in which the practitioner—perhaps led astray by the strong assurances and fervid belief of the patient herself—has imagined that he heard something like the sounds of a fœtal heart, where there was no fœtus present to produce any such sounds. Several years ago I had a lady placed under my care from a neighbouring part of the United Kingdom, in whom a physician—who had written a work, and a very excellent work too, on Auscultation in Pregnancy—fancied he had heard, three or four months previously, the sounds of a fœtal heart; and, though all due preparations were made, no child was born. It was nothing but a very marked instance of pseudocyesis. It is only necessary for me now, I believe, in the present advanced state of stethoscopic study and practice, to mention the possibility of such an error in order to guard you against the committal of the error itself.

2. *Percussion of the Abdomen* is generally a most valuable means

of diagnosis in the discrimination of pseudocyesis. By its aid you can often arrive at an almost absolute certainty as to the spurious nature of the pregnancy. When the abdomen is swelled up and made prominent from the distension of the bowels with gas, you of course obtain a resonant and even tympanitic sound on making percussion over it; whereas, as you all know, the sound is perfectly dull when the prominence is due to the enlargement of the gravid uterus. But sometimes percussion is painful from the over-sensitive state of the abdominal surface and walls, and sometimes the amount of fat deposited in these walls and in the omentum—especially in cases of pseudocyesis occurring towards the termination of menstrual life—diminishes the applicability and certainty of this diagnostic test. In these, and in other cases, you can usually surmount every doubt and difficulty which may exist, by having recourse to the two remaining means of physical diagnosis which I have named.

3. *Tactile Examination* is usually indispensable, in order that you may arrive at perfect certainty. In using it you must make a careful physical examination, both internally and externally, remembering that the result of that examination may be of the greatest importance, and a matter of momentous interest to the patient. On examination per vaginam you will feel that the os and cervix uteri are small, and you can make out pretty well that the uterus itself is moveable. But there is a greater difficulty than usual in judging of the size of the body of the organ in such a case. You can usually derive great assistance in making your diagnosis of various morbid conditions of the uterus by applying one hand to the fundus externally through the abdominal wall, while you apply one or two fingers of the other hand to the cervix internally through the vagina, for thus you can catch the uterus between the two hands, so as to define and determine exactly its degree of enlargement. And if in any case of spurious pregnancy, by feeling the uterus simultaneously with both hands, we can thus measure its size and make out that it is of nearly normal dimensions, or at least not by any means enlarged to a degree commensurate with the alleged date of utero-gestation, we have a most decisive evidence of the true nature of the affection. Recollect, further, in making this tactile examination of the uterus, that the organ is sometimes in some degree enlarged in pseudocyesis, without there being any disease in it; that the organ may be enlarged also, and to a great degree, from fibroid tumours and other organic causes, a combination with pseudocyesis, of which I have seen several examples in practice; and, above all, that retro-

version or retroflexion of the non-pregnant uterus often co-exists with pseudocyesis, and often leads to the supposition that the uterus is increased in size, when the apparent increase is merely produced by displacement of the viscus. But in some cases of spurious pregnancy it happens that we cannot succeed in making a perfect and satisfactory tactile examination at all; and why? Because the abdominal walls may be, and often are, naturally thick, the subcutaneous tissue being filled with fat; but, independently of that, there is in many of these cases a firm unyielding swelling of the abdomen which you might suppose to be due to the enlargement of a gravid uterus, but which is in reality due to a tympanitic state of the bowels, and a peculiarly tonic condition of the abdominal muscles; and the abdominal walls are so firm and tense, and resist the pressure of the hand so effectually, as to render it utterly impossible for you to make out the size and contour of the uterus. Now, how are these obstructions to be overcome? Very simply, by the use of anæsthetics.

4. *Chloroform* will generally, in any case of doubt, solve the difficulty completely, if only given deeply enough. When the patient is fairly put to sleep with chloroform, the tense abdominal muscles become perfectly relaxed, and on pressing on the abdomen, you will find that the walls will give way before your hand, and sink backwards till you can feel the spinal column quite distinctly, and you then find the uterus to be of normal size. The phenomena presented by that phantom tumefaction of the abdomen while the patient is being anæsthetised, are very singular. When the patient lies down on her back, and the abdomen is uncovered, it is seen to be projecting, swollen, rounded, and defined, like the abdomen of a pregnant woman; but generally, as I have said, with an appearance of unusual constriction around the lower edge of the ribs. No change occurs during the first stage of the administration of the anæsthetic, and until the period of excitement has passed over, the swelling continues, and the muscles remain rigid and tense as at first; but gradually, as that stage passes off, and the respiration offers to become sonorous, the muscles begin to be drawn in, and the abdomen slowly flattens, until it assumes its proper size, or even becomes depressed and relaxed, like the abdomen after delivery. So long as the patient remains in a deeply anæsthetic state, you can make the most complete and satisfactory examination of the state of the uterus, and, indeed, of all the abdominal organs; and you may have recourse to this expedient with perfect safety and success in

doubtful cases of real pregnancy also. But when she comes out of her sleep again, in a case of spurious pregnancy, the muscles begin to arch up and to become tense as before, so that by the time the patient is fully awake, the abdomen is as large and rounded as ever, and the necessary examination again becomes painful. For, as I have already hinted, the patient has sometimes in pseudocyesis a degree of tenderness in the abdomen that renders her very intolerant even of a slight amount of pressure. The patient having wakened up and found the apparent tumour still present, fails herself to be convinced of the fact that it had, for a time, been dispelled. But you may, perhaps, convince some of her friends of the absence of any real tumour, and their corroborative assertion may go far to bring her to a sound and proper belief afterwards. I had once a poor peasant's wife, from Berwickshire, with spurious pregnancy, who bothered all her friends, and kept them in a state of continued anxiety and trouble, because she was always going into labour, until she had arrived at a period which corresponded in her reckoning with the thirteenth month of utero-gestation. She was one of those persons whom it was utterly impossible to convince by any argument of the true nature of her affection; and her great confidence in the reality of her pregnancy had imposed on her friends, and led them for long to share in her kind of monomania, —for, after all, the mind is really in such a morbid state in some of these cases as to deserve the name of monomania. Having put her under the influence of chloroform, I called her sister into the room, and made her feel the spine through the collapsed abdominal walls, and succeeded thus in demonstrating to her entire satisfaction that there was no child in her sister's abdomen. But the patient waking up, and finding no change in her condition and form, might have remained unshaken in her belief, and, indeed, was still for stoutly affirming that she was pregnant, when her sister shut her up with, "Haud your tongue, woman! You've naething in your wame, for I felt your backbane mysel' wi' my ain hand!" I have no very satisfactory explanation to offer you of the nature of this very strange abdominal swelling, and of the peculiar phenomena observed in it, when the patient is in a state of anæsthesia. Some years ago I made a number of observations on some of our hospital patients, to try and solve the difficulty. Some medical friends who had been told of the remarkable effect of the chloroform, were quite certain that the swelling must have been due to distension of the bowels with gas, which, they averred, must have escaped unobserved when the sphincter was relaxed during the deep sleep induced by the drug. But that this was not the proper explanation, we easily proved, by introducing a tube into the rectum, and putting the free end of it under water, and then finding that no bubble of air escaped during the anæsthetic subsidence of the swelling. I believe that the phenomenon most probably depends on some affection of the diaphragm, which is thrown into a state of contraction, and pushes the bowels downwards into the abdominal cavity. I am the more convinced that this is the true explanation, from the fact that you can sometimes make the abdominal swelling disappear for a second or two, by getting the patient to take a deep inspiration, and then suddenly breathe out again; or by making her count as far as forty or sixty without drawing in a breath, whilst you keep the hand pressing firmly and steadily on the abdominal wall. But, whatever be the explanation, the value of anæsthesia as an adjuvant in aiding and establishing a correct diagnosis of such cases cannot be overrated.

LECTURE XXIV.

ON SPURIOUS PREGNANCY—ITS PROGNOSIS, PATHOLOGY, AND TREATMENT.

GENTLEMEN—My last lecture was devoted, as you may please to remember, to the consideration of Spurious Pregnancy, or Pseudocyesis, a form of disease which, as I then told you, is in its more complete, but especially in its interrupted or fragmentary forms, by no means rare in practice, and ofttimes very puzzling to the practitioner. Until you have met with a model case, and perhaps been deceived by it, you would hardly believe how readily you might be led into the mistake of making a false diagnosis. To show you how far the deception may sometimes go, let me state that a lady came to me from the country a few days ago with pseudocyesis, and bringing with her a letter from her medical attendant, a highly experienced and intelligent practitioner, who writes me that all the symptoms of pregnancy were at one time very decided, and that he even made himself believe he heard the sounds of the fœtal heart on applying the stethoscope to the patient's abdomen. Such a mistake might easily be made by any of us, and the possibility of its occurrence may serve to impress upon your minds the importance of studying and making yourselves practically familiar with all the various means which are likely to enable you to obtain a clearer insight into the nature of the affection. In continuing this subject, now, let me say a word or two, first of all, as to

THE PROGNOSIS OF THE DISEASE.

Spurious pregnancy does not always run a defined and determinate course, and the period of its existence differs in different cases without our being able to assign any particular cause for the variation.

1. The symptoms may be all more or less fully established, and go on unintermittingly for a few weeks or months, and then

suddenly break down and disappear. There is a cessatio abortion, as it were, in the course of the disease. In pseudoc among the unmarried, this is, perhaps, its most common mo termination.

2. The symptoms may continue for the space of nine mo and the delusion that a real pregnancy is running its normal c may be kept up till the end of the usual period of utero-gest when the series of the phenomena of simulated pregnancy be concluded by the development of the phenomena of simu parturition; or, what occurs far more frequently, the disease be brought then to a more or less speedy termination without production of any such symptoms.

3. In some cases the train of symptoms goes on uninterrupt even after the patient has passed the ninth month of her sup pregnancy, and does not break up till she has reached the t fourteenth, or eighteenth month. I saw a patient to-day knows that she is labouring under spurious pregnancy, and wh felt movements which she supposed to be fœtal for fourteen mo There is another patient coming occasionally to my hous present, with well-marked symptoms of spurious pregnanc whom I amputated the cervix uteri some twelve or fourteen ago, and who since that period has never borne any children, continued to menstruate regularly up to about eleven months Nine months since, she came to me believing herself pregnant, as the uterus was quite empty and only somewhat retrovert assured her that she was not in the family-way at all. A m ago, however, she returned, averring that I must have been taken, because soon after the date of her previous visit, she begun to feel the movements of the child, which still conti very vigorous and distinct. She owned, certainly, that the m ments were peculiar, and situated much higher up under diaphragm than she had ever felt them in her real pregnancies, on examination the uterus was found to be in exactly the s condition as it was nine months ago. Under the use of som the remedies, of which I shall have to speak immediately, symptoms have begun gradually to disappear. She is still incl to aver that there is a child there, and that the child's movem are now lower down in the abdominal cavity, and she still retai lingering expectation that she will soon be delivered; but her f in the genuineness of the pregnancy has been materially shak and is slowly giving way.

4. The duration of the disease may not be limited by months, for the series of symptoms may continue and the delusion be kept up for years. I have seen patients living in the belief that they were pregnant, and deluding themselves with vain hopes for long periods, frequently making preparations for their approaching confinement, and still persisting in their belief after oft-repeated disappointments. I have seen the disease go on in this way till the patient's mind became unhinged and she became incurably deranged. There is a lady in an asylum in the neighbourhood of this city who avers that she has inside her a child, which, according to her reckoning, must now have attained the age of, at least, ten years; and the last time that I had occasion to be in that institution, I saw that lady, and was favoured with the old announcement that she was to require my services very soon now. Such cases are, happily, extremely rare; but you do meet with them occasionally, and not in patients within the walls of a lunatic asylum only. It is told that a lady once came to Dupuytren to ask what was to be done in her case, as she had now been in the family-way for fourteen years—and the great Parisian surgeon gave it as his opinion, that as the boy must be tolerably well grown by that time, the best thing the lady could do was to swallow a tutor immediately, that his education might not be neglected!

Pathology of the Disease.

The question as to the pathological nature of this peculiar form of disease is still involved in great obscurity. On making a local examination of the organs of generation, with the expectation of discovering in them the source of all the other changes, we may find these organs in very different states in different cases.

First. We may find the uterus and ovaries affected by some common form of disease. Not unfrequently the uterus is felt to be hypertrophied and engorged; or it may be in a state of anteversion or retroversion; more frequently still, perhaps, there is some degree of ulceration; or some form of eruption on or around the os and cervix; or a slight degree of inflammation in the body of the organ. Or the ovary may be enlarged, or otherwise morbidly affected; as in one of the most perfect cases of spurious pregnancy I ever saw, where the series of symptoms seemed to have taken their origin in an abscess of the ovary. But,

Secondly. Far more frequently we find no trace of uterine or ovarian disease whatever, so that when we do meet with morbid states of the uterus and ovaries as complications of spurious pregnancy, we can hardly recognise them as essential causes of pseudocyesis, but must rather regard them as coincidences; and this all the more, when we recollect how common such diseases are among women who present no such sympathetic constitutional phenomena at all.

Thirdly. When observed in the lower animals, spurious pregnancy has been remarked to occur within a certain period after the time of heat, and to be distinctly connected with that condition; so that in them it is most probably dependent on the physiological change or changes which are at that time set up in the uterus and ovaries. Menstruation in the human female, as you know, corresponds to the phenomenon of heat in the lower animals, in so far, at least, as the process of ovulation and the ripening of a Graafian vesicle is concerned; and I believe that the aggregate of symptoms which we class under the designation of "spurious pregnancy" in women, is in some way or other dependent upon the changes which occur in the ovaries and in the uterus at the period of menstruation. When the irritation associated with the normal or physiological changes in these organs is somewhat excessive either in degree or in duration, and is repeated from month to month, the sympathetic phenomena excited at one period have not had time, in some instances, to subside, before a new stimulus is supplied for their continuation by the recurrence of the menstrual molimen. True pregnancy occurs when the ovulum which escapes from the Graafian vesicle duly meets within the mother's body with male spermatozoa, and as a consequence, a long nine months' series of local and constitutional phenomena immediately begins to be set up. But the same series of constitutional phenomena, at least, is set up in cases of pseudocyesis when an ovulum escapes, or a reproductive nisus occurs, without any male spermatozoa being present, these phenomena occasionally ending, as we have seen, at the usual extreme term of utero-gestation, in a simulated parturition, or in a kind of *Lucina sine fœtu,* just as in some cases, as among the unmarried, they commence by a kind of *Lucina sine concubitu,* to borrow the language of the old physiologists. Experimental physiology, or experimental pathology, if you choose rather to call it so, might probably throw some light upon the subject. It is at all events, extremely probable that careful observation of the phenomena of the disease as they occur in the lower animals, and a minute examination of the generative organs of some of them, which have been killed when in this state, might lead to the discovery of some appreciable and perhaps morbid condition of these organs, which would serve to explain the peculiar phenomena of this disease. Perhaps we would find the *corpora lutea*, under such circumstances, tending at least to simulate in their development and growth the *corpora lutea* of pregnancy. Pseudocyesis, let me again, in conclusion, repeat, though it may sometimes be found to be associated with, and to be exaggerated and continued by, uterine or ovarian disease, yet it is not so necessarily or even most frequently; and, further, the local disease which is present may be of the most variable description. So that, on the whole, the disease would seem to depend rather on some disturbance of the ordinary function of the generative organs than on any organic disease of these organs attended and attested by organic changes in their intimate anatomical structure.

TREATMENT OF THE DISEASE.

But although, as pathologists, our knowledge of the nature and causes of pseudocyesis is so very limited and so very vague, as practitioners, fortunately, we can do a great deal towards moderating the symptoms and modifying or arresting the course of the disease. For in almost every case there are some indications for treatment clearly presented to us, and by skilfully fulfilling these, we can often succeed in cutting short and dispelling the whole of the phenomena. The principal indications which we require to look to are the following:—

I. *Raise or Restore the Standard of Health.*

You will find that many of the patients affected with spurious pregnancy are in a state of impaired general health; and, independently of the nausea and vomiting which form part of the special symptoms requiring special treatment, they frequently suffer from indigestion, and are often very hypochondriacal. When such is the case, you will give material aid to the action of more specific remedies, and do much towards the cure of your patient, by the administration of bitter vegetable infusions, and of such tonics as may seem to you to be best fitted in each particular case to increase the general tone and vigour of the patient's constitution.

II. *Counteract or Cure any existing Uterine or Ovarian Disease.*

Though this indication may not require to be fulfilled in the majority of cases of spurious pregnancy, seeing that in most you find, as I have said, no disease of the uterus or ovaries at all, yet when such diseases are present, it becomes a matter of paramount importance to employ all the usual remedies adapted for their cure; and that not because these diseases are of themselves sufficient to lead to the development of spurious pregnancy, but because the irritation they excite in the generative organs plays an important part, if not in the production of that malady, at least in its continuance, and must be counteracted and controlled by all appropriate means. When the os uteri is ulcerated, we must promote the healing of the sore by the ordinary means and applications; when the organ is inflamed acutely, or as it more frequently is, subacutely or chronically, we must apply leeches and counter-irritants, and employ the various antiphlogistics; and so on with all other forms of disease of the uterus or ovaries that may happen to complicate any particular case.

III.—*Administer Uterine and Ovarian Sedatives.*

Perhaps the most important indication that presents itself for fulfilment in every case of pseudocyesis, is to diminish or dispel the irritation which we suppose in almost every case to have been set up in the uterus and ovaries, and which we believe to be the immediate exciting cause of all the other phenomena of the disease. Where this irritation is produced by, or connected with, any recognisable morbid condition of the organs of generation which is amenable to treatment, you must, as I have just stated, have recourse to all the usual remedies for the cure of that morbid state, in the hope that, as the local disease is cured, the symptoms of pseudocyesis may subside. But where there is no form of appreciable organic change to be detected, as is the case, I again repeat, in the greater number of instances, and where there seems to be merely some functional disturbance attended with irritation or excitement of the uterus and ovaries, then you must have recourse to the use of remedies which are likely to act as direct sedatives of the generative organs. But you may ask me, Have we any such remedies? To such a question I am inclined to reply by stating that I believe we have remedies of the kind indicated in the bromide and the iodide of potassium. I know, at all events, that by the administration of these drugs, and particularly by the administration of the bromide of potassium, I have often succeeded in cutting short the disease, and in causing the train of symptoms to be suddenly broken down, after they had been in existence for a few months only, instead of allowing them to go on and annoy the patient till the completion of a period corresponding to the usual term of utero-gestation, or even for a greater length of time; and this striking effect of these remedies I am disposed to attribute to some specific sedative action exerted by them on the uterus and ovaries. And there are other facts known with regard to the use of these drugs, which go far to confirm the idea that they are possessed of such an action as I refer to. It is on this supposed action, for example, that Sir Charles Locock founds his recommendation of the bromide of potassium for the cure of epilepsy connected with menstruation. There is, as you are aware, a form of epilepsy which is liable to attack females, and more particularly young girls who have just reached the age of puberty, and who become subject to an attack of epilepsy immediately before, during, or after the recurrence of every menstrual period. The onset of the epileptic fits seems to be directly connected with some obscure kind of irritation set up at these periods in the organs of generation; and, according to the experience of Sir C. Locock and others, this type of disease, which rarely yields to any other mode of treatment, may sometimes be cured by the use of bromide of potassium, which probably acts by quieting the excitement of the uterus. From these and such like observations as to the action of the bromide of potassium on the uterus, I was first led to try the effect of it in cases of spurious pregnancy; and from what I have seen of its efficacy in these cases I can recommend you very strongly to have recourse to its administration. Give five or ten grains of it three times a-day, either alone, or with the addition of from two to three grains of iodide of potassium, and I feel certain that you will often succeed in checking the progress of the morbid symptoms, and so in relieving your patient's mind of much anxiety, and in saving her much needless trouble and prolonged distress. The remedy, let me add, has this further recommendation, that it often proves a good tonic, so that its use is not contra-indicated by any constitutional debility on the part of the patient. The bromide of potassium, led me add, may also be applied locally to the uterus by having it made up in the form of a medicated pessary, and its action may then be aided or supplemented by the admixture of some other sedative, such as morphia or belladonna. Or you may employ other local sedatives. Thus I have sometimes attempted to allay uterine irritation in such cases, and more particularly where it was attended by, or amounted to, a certain degree of neuralgia, by the introduction of a stream of carbonic acid gas, or of that gas combined with the vapour of chloroform into the vagina, in the manner I explained to you when treating of the palliative treatment of carcinoma of the cervix uteri. Sometimes, also, I have used leeches locally with a similar view. By the mere application in this way to the uterus of local sedatives you can never, perhaps, expect to produce such a powerful effect on that organ as will lead to a cure of the disease ; but I believe you will often find them most useful adjuvants to the internal remedies. But besides attempting to arrest the whole train of morbid phenomena by this kind of radical treatment, there remains, finally, one more indication to fulfil, for you will be obliged in most cases to try more or less to

IV. *Reduce and relieve the Individual Symptoms.*

The two symptoms which chiefly call for treatment in the course of the disease, are, first, nausea and vomiting, which are often as persistent and prostrating in cases of spurious as in cases of genuine pregnancy ; and, secondly, tympanitis, which often gives great annoyance from the persistent attendant increase in the size of the patient.

a. Treatment of the Nausea and Vomiting. — The sympathetic sickness and vomiting of real pregnancy are, as you know, sometimes though happily very rarely, so alarming and unmanageable as to oblige us to sacrifice the existence of the embryo to save the life of the mother by procuring abortion. Yet our treatment of symptoms which are thus occasionally so distressing and formidable, is in every instance of an altogether empirical nature, and when the same symptoms occur to such a degree as to call for treatment in any case of spurious pregnancy, they must then also be met by means which are purely empirical. It is just possible, indeed, that if by the application of leeches to the uterus and counter-irritants to the sacrum, aided by the employment of various antiphlogistics, we succeed in subduing some co-existing metritis,—or if, by other appropriate means, we effect a cure of any other co-existing disease of the uterus

—our treatment may, at the same time, have the effect of subduing the concomitant sickness. Or the internal administration of bromide of potassium may, perchance, fulfil at the same time the double indication of diminishing the uterine irritation, and dispelling the sympathetic nausea and vomiting. But where this combination of secondary symptoms—namely, nausea and vomiting—really occurs to such a degree as to prove distressing to the patient, as it not unfrequently does, it then demands some specific treatment, and, if one or two methods fail, you may require to put your patient through a course of many different medicines, and to ring the changes on all the drugs that are usually found to act most powerfully and certainly as sedatives of the stomach, before you meet with ultimate success. Sometimes you can moderate and remove this sympathetic nausea and vomiting by regulating the diet of the patient with some degree of strictness, and especially by giving food in small quantities and often, instead of loading the stomach with a large meal, and desiring her to take everything cold, or even iced. External counter-irritation over the stomach is prescribed by some physicians, and others advise us to apply morphia, etc., to such a surface when the cuticle has been removed by blisters. The internal remedies which are used for allaying nausea and vomiting, whether these phenomena be secondary and sympathetic, or directly due to some disease or disorder of the stomach itself, form a class comprising many and very different drugs; but from their very number and variety you may learn how uncertain each one of them is, and how frequently you may be baffled and obliged to try one after another before you succeed in relieving your patient. You can rarely, if ever, tell at first what remedy will prove successful in any particular case, and you must be prepared, when disappointed with the effect of one, to have recourse to the administration of some other form of sedative. In many cases you will very naturally have recourse, in the first instance, to the use of that most generally efficacious of sedatives—opium. You may administer it, for this purpose, in any of the multitudinous forms of the drug, but always in very small doses, corresponding to a fourth, a third, or a half of a grain of the solid opium. It may be given alone; and, perhaps, no form of it is more convenient or more agreeable to the patient than solid opium in the form of a very small pill; or it may be given in the form of powder combined with some other simple sedative, such as the sub-nitrate of bismuth, or that other preparation of bismuth which is now coming into fashion, and which is supposed to be more certain and speedy in its action, inasmuch as it is more easily soluble in the juices of the stomach—I mean the carbonate. But there are many patients with whom opium in every guise and in every combination disagrees, and its use is here attended with this further drawback, that it tends to produce or keep up constipation of the bowels, which is one of those symptoms which you are called upon to control. The vomiting may often be checked and the nausea abated by the administration of one or two drops of prussic acid given in a teaspoonful of water, or in some syrup. When other means have failed, you may sometimes succeed in fulfilling the same indication by the use of two or three drops of naphtha, administered, perhaps, in a teaspoonful of the tincture of hops, which is certainly a very disgusting mouthful, but sometimes apparently of essential service in different kinds of vomiting. The chief objection to the use of this remedy is its disagreeable taste; and this objection holds good also in the case of creosote, another supposed potent and kindred anti-emetic. In administering any of the remedies to which I have referred, you will do well to combine them occasionally with some of the ordinary carminatives, with the view at once of obtaining the effect of that class of medicines, and of covering the unpleasant taste of the special remedy. A less disagreeable agent, or rather, one whose use is positively pleasant, is carbonic acid gas, which is frequently efficacious, and which is always easily procurable. The only caution to be observed in its employment is that you must give it in moderate quantities, and not to such an amount as to produce over-distension of the stomach. You have it always at hand in champagne, soda-water, and the various aërated drinks, or you may order it in the form of an old and celebrated remedy once very extensively employed and known as the anti-emetic "potion of Riverius," which was a draught composed of a solution of a scruple of salt of wormwood (or carbonate of potass), mixed with a tablespoonful of lemon-juice. Effervescing wines are sometimes useful in small doses, both as containing carbonic acid, and as gentle stimulants when the latter are required. Again, you will find that swallowing frequently small pieces of ordinary block ice is often of very great avail in checking vomiting and allaying sickness; and I would recommend you in particular to have recourse to this remedy whenever the patient is at all feverish, or when she suffers from thirst. Salicine is at present, I believe, a favourite remedy with some English physicians, and is frequently prescribed with success, in the form of a pill, powder, or solution, containing two or three grains of salicine to be taken three or four times a-day. From the class of metallic bodies we derive a number of remedies which are of essential service in cases of sympathetic vomiting. Such are the nitrate and oxide of silver, which, as well as the preparations of bismuth to which I have already alluded, have long been regarded and employed as amongst the most valuable agents we possess in many forms of the affection. In acetate of lead you have another therapeutic agent of occasional value as an anti-emetic, although it is more known and esteemed for its many other important medicinal virtues, than for the property which it possesses of allaying irritability of the stomach and sympathetic vomiting. Some fifteen or sixteen years ago I saw a case, in consultation with the late Dr. Abercrombie and Dr. Argyle Robertson, where the patient, who was in one of the early months of pregnancy, suffered from vomiting to such a degree that she was utterly prostrated; and at last it was thought we should be compelled to induce premature labour, or rather abortion, to save her life. But on the suggestion of Dr. Abercrombie it was agreed, before having recourse to this extreme measure, to make trial of the effect of acetate of lead, which was almost the only drug of the class that had not been administered, and, to our great delight, the result of the trial was that the vomiting was immediately restrained and finally checked by the administration of the drug. You may never be obliged to make such an application of this agent; but lest occasion for it should arise, it will be well for you to bear in mind this property of it. I have never seen the vomiting of pregnancy, whether real or spurious, assume the form of hæmatemesis, and I believe that such is an extremely rare occurrence; but I am certain you will excuse me, even although it may thus appear somewhat foreign to the subject in hand, if I take occasion here to inform you of the very striking and satisfactory effect which I lately witnessed from the use of a solution of perchloride of iron in glycerine in a case of vomiting of blood. The patient, whom I saw in consultation with my friend Dr. Andrew Wood, had been vomiting up great quantities of coagulated as well as fluid blood, and a great many different remedies had been employed, but without any good result. Having had frequent experience of the effects of the local application of perchloride of iron in arresting hemorrhage, I proposed that some should be introduced into the stomach, in the hope that by coming into contact with the blood at the vascular orifice, or orifices rather, from which it was escaping, it might lead to its coagulation there, and so prevent its further flow Accordingly, after a severe fit of vomiting, by which the stomach seemed to be for the time emptied of its contents, the patient was made to swallow a teaspoonful of the concentrated solution of perchloride of iron in glycerine, and from that hour to this, now several weeks ago, she has had no return of the vomiting. You need have no fear, I believe, of any bad consequences from the use of this remedy; at least, I know from experience that a much larger dose than that which I have indicated may be given with perfect impunity. For having had occasion once to carry to a patient's hotel some of the liquid to apply to leech-bites on the cervix uteri, which happened to bleed for an unusual length of time, I left the bottle of the liquid in the patient's room, to use if the bleeding recurred. The lady's husband was at the time absent, but being an Englishman who believed that the prime duty of every practitioner was simply and purely to administer drugs, when he came in and was told that no medicine had been given, but that the doctor had left a bottle behind him, he savagely insisted on making his unfortunate wife swallow all its contents, about two ounces of perchloride of iron solution. I was horrified when I heard of what had been done; but, as it turned out, my alarm was groundless, for no bad effect whatever ensued, except that the walls of the patient's mouth felt for a time mercilessly puckered and pulled together.

I have thus named to you a variety of remedial agents, all of which, whether singly or combined, are more or less efficacious for the cure of vomiting; but I have not as yet said anything regarding the drug which I have found to be, of all individual remedies, the simplest and surest agent that can be administered for arresting the sympathetic vomiting of pregnancy. The drug I refer to is oxalate of cerium, which I have seen successful in curing vomiting in a larger proportion of cases than any other single remedy which I have used; and its good effects are not confined to the forms of vomiting which depend on the sympathetic derangements of the stomach caused by changes, functional or pathological, in the uterus or other organs, but are manifested also in those forms of the disease which are due to different morbid conditions of the stomach itself. Cerium is, as you know, one of those rare and little-known metals which were first discovered in the early part of the present century, and is found chiefly in the Scandinavian mines, combined in small proportions in various minerals. I believe that any of the other preparations of the metal would fulfil the indication equally as well as the oxalate, which is used simply because it is the most easily procurable salt of cerium in the market; oxalic acid being used to separate the cerium from the metal with which it is most generally combined in nature, namely didymium. The action of cerium on the stomach seems to be that of a sedative tonic, resembling in some degree the action of the salts of silver, and bismuth; and I have seen it succeed in curing the most obstinate cases of vomiting so much oftener, and so much more speedily, than any other remedy, that I have come of late to have great faith in its employment. I would not lead you to suppose that by the administration of a quantity of oxalate of cerium you will succeed in curing every case of vomiting, or even in alleviating it in every case; but I am certain that you will find the remedy successful in a larger majority of instances than you will find any other one drug. You may give one or two grains of it, three times a day or oftener, in the form of pill, or mixed with a few grains of gum tragacanth, in the form of a powder. The vomiting usually ceases after a few doses have been taken; but in some cases it does not abate till the remedy has been persevered with for several days. The effect is sometimes instantaneous. I had a patient some time ago from the west of Scotland, and when her husband first came to ask me to visit her, I was engaged and could not go, but after hearing his account of the case, I gave him a prescription for cerium pills, which I desired him to administer to his wife till I could get to see her. He came back next morning, asking what the medicine was which I had given him, for the effect of it had been like magic. The vomiting, which had been going on almost incessantly, and which nothing seemed to have any power of alleviating, ceased upon the administration of two doses of the cerium. In a previous pregnancy in this patient it had been made a question for a medical consultation whether abortion should not be induced, to save her from the effects of uncontrollable sickness and vomiting. But the good result is, unfortunately, not always so immediate. One of the earliest cases in which I employed it was in the case of a lady who came from Greenock, when she was pregnant for the fourth time, and had arrived to between the third and fourth months of gestation. For these three and four months she had been always vomiting many times a day, and often during the night also; and that whether the stomach was empty or full. She could take but very little food, for she always sickened at the sight of it. It had been the same in all her former pregnancies; and on the occasion of the first of them the vomiting was so severe as to bring on a miscarriage, and the patient's own life was despaired of. She got, first of all, one grain of oxalate of cerium, but vomited three hours afterwards. She was then told to take a grain every three hours for a day, and afterwards one grain thrice a day. This was successful in checking the vomiting, and a few days afterwards she left Edinburgh, feeling quite well, eating her meals heartily, and free from all sickness. Everything had been tried by different medical men in the West which afforded any prospect of relief, as creosote, prussic acid, bismuth, lime-water, ice, champagne, opium, blisters, etc., but all without effect. The only thing from which she ever experienced any benefit, and that was only very transient and temporary, was calcined magnesia. Yet, as I have told you, it required only a very few doses of oxalate of cerium to produce a perfect cure. Shortly afterwards, I saw, with Dr. Craig of Ratho, a case of severe and persistent vomiting in pregnancy, where he had tried everything; but in vain. She, too, was cured by a few doses of cerium. When the propriety of entering this and other modern remedies in the new Pharmacopœia to be published by the Medical Council was lately debated, it was objected that so little of the drug is used that it is not worth while classifying it among the other recognised medicinal agents. But on making inquiry lately at the drug-shop of Messrs. Duncan, Flockhart, and Co., in this city, I was told that they had sold as much as sixty-four ounces during the preceding twelve months, and I feel assured that it only requires to be more widely known to make it more extensively esteemed and employed as a general metallic sedative tonic. But it is time that I should proceed to say a word or two as to the

b. Treatment of the Tympanitis.—The enlargement of real pregnancy will be borne by most patients without repining, whereas the distension of the abdomen which forms one of the most deceptive and striking symptoms of spurious pregnancy, is a source of constant complaint; and you will frequently be called upon to do all in your power to relieve it. Although the phenomenon is in a great measure due, as I have already endeavoured to explain to you, to a peculiar action of the diaphragm, as is shown by the flattening of the abdomen, which is seen when the action of the muscles is modified by the influence of anæsthetics; yet there is in most cases a physical cause which operates in some degree towards the production or continuance of the protuberance, and which you can, in some measure, overcome by means of medicaments—I mean, of course, flatulence. For this a variety of remedies may be employed, and perhaps there is none which you can use with more success than the ordinary compound galbanum pills of the Pharmacopœia, of which the patient should be made to take two, twice or thrice a day. Some physicians have faith in these cases in pills of ox-gall. The assafœtida pill is sometimes of great service, more particularly in those cases where hysterical symptoms are superadded. Some of the valerianates, such as the valerianate of zinc, may be administered with much advantage. Powdered charcoal used to be a favourite remedy with the late Dr. Abercrombie in many forms of flatulence; and a teaspoonful of that powder administered three or four times a day often reduces the swelling more rapidly than anything else, more especially in those cases where there is much flatus present. It acts probably in consequence of the well-known power which charcoal possesses of absorbing great quantities of different gases. Where there is any degree of irritability of the intestinal mucous membrane, it may be very advantageously given in combination with bismuth; and, perhaps, some calcined magnesia; but the most elegant form in which charcoal can be administered is the charcoal biscuit which is sold by most chemists and druggists. In addition to other means, you will sometimes find it advisable to make the patient wear a binder applied pretty tightly round the abdomen, to afford support to the abdominal walls, and to assist by its pressure in causing absorption of the intestinal gases.

LECTURE XXV.

ON OVARIAN DROPSY.

GENTLEMEN—During the course of the session we have had in the hospital several cases of Ovarian Dropsy, one of which ended fatally, after a simple tapping, and was made the subject of a clinical lecture on Surgical Fever. There is at present in the ward a patient who has been for several years the subject of this disease, and whom I tapped here, for the first time, about four years ago. A great quantity of fluid was withdrawn at that time from a large and prominent cyst, and the patient has remained in a state of comparative health till about a year ago, when the tumour again began to enlarge, and it has now attained such a size as to have become once more a cause of great inconvenience and distress. This enlargement has not taken place, I believe, in consequence of the cyst, which was formerly evacuated, having again refilled, for that in all probability became obliterated by the iodine injected after the former tapping; but, as was then ascertained, there were a large number of smaller secondary cysts also present, many of which seem now to have become distended with fluid and enlarged, so as to produce the present bulk of the tumour. Into the most prominent of these cysts I introduced, a few days ago, an ordinary trocar and canula, but, as those of you who were present had an opportunity of seeing, the fluid that escaped was only very trifling in quantity, and even after I had ruptured the septum between that cyst and a neighbouring one by means of a long probe passed through the canula, the quantity of fluid drawn off was still too small to lead to much appreciable difference in the size of the tumour, or to afford the patient any degree of permanent relief. She is, therefore, to be sent home, and advised to wait for a while, in the hope that, after the lapse of a few months, the septa between the cysts shall have become thinned and broken down, and one large single cyst shall have been formed from the communication thus established between a multitude of smaller ones, when we may hope to obtain a better result from the operation of paracentesis. From this case, then, let me take occasion to tell you something regarding the nature and treatment of the disease from which the patient suffers, and first of all as to

THE PATHOLOGY OF OVARIAN DROPSY.

The ovary, like all other organs of the body, is liable to various forms of disease, and to become the seat of different kinds of morbid growth. But the form of disease or degeneration to which it is above all others prone, is that commonly spoken of as dropsy of the ovary, consisting of a hypertrophy of the organ from the development in it of a number of large cysts or sacs filled with serous fluid. The ovary consists normally of an aggregation of many minute cysts —the Graafian vesicles, which are the essential elements of the organ, inasmuch as in them the ova are formed. These cysts are imbedded in a fibrous stroma, serving to support and separate the different sacs, and to permit of the ramifications of vessels and nerves in their exterior. Now it is a well-known and often exemplified law in general pathology, that when any organ becomes the seat of a new or morbid growth, this new or morbid growth most readily takes on a form of development leading to the formation of a tissue akin to the normal anatomical structure of the organ in which it has its seat. It is in accordance with this great law that the ovary is so pre-eminently prone to become the seat of cystic degenerations. But we meet with various forms of cystic degeneration or disease in the ovaries and their neighbourhood. Within the external margin of the broad ligament, where the peritoneal layers pass downwards and backwards from the fimbriated extremity of the Fallopian tube to meet and invest the ovary, there lies a fibrous-looking, fan-shaped structure, imbedded in the folds of the peritoneum, and known as the organ or body of Rosenmüller—a body of but little importance in the adult, and rarely made a subject of anatomical or pathological observation. In the fœtus, however, it is relatively much larger than in the adult, and is an object of correspondingly greater importance. I have sometimes had occasion already to refer to some of the analogies between the different segments of the male and female organs of generation, and to point out the unity of structure that pervades the two sets of organs; and I may here state that the body of Rosenmüller is in all probability, as pointed out by Kobelt, who has named the organ in question the Pro-ovarium, the analogue in the female of the male epididymis. They each represent, at least in their respective sex, the remains of an organ of great size, and apparently of great importance in fœtal life—the Wolffian body. But what I want more particularly to say at present with regard to the pro-ovarium is this, that being the remains of an organ of tubular structure, the tubuli do not all become entirely obliterated and degenerated into mere fibrous cords, for some of them retain their original character till far on in adult life, and occasionally a secretion of serous fluid takes place into these cœca or tubes, distending and enlarging them, and so producing one of the forms of cystic degeneration so often met with in this locality. The form I allude to consists of cysts between the layers of the broad ligaments, or elongated pediculated cysts attached to the fimbriated extremity of the Fallopian tubes, or their neighbourhood. It is not, however, of this form of cystic disease that I am now to speak, nor of that form of dropsy which depends on partial obliteration or occlusion of the Fallopian tube and its distension by the secretion of fluid into it between two obliterated points. We put these out of the category of cases of ovarian dropsy, seeing that they have not their seat in the ovary itself, but only in the organs nearest it, and pass on to the consideration of the various forms of cystic disease to which the ovary itself is liable.

1. *Unilocular Dropsy of the Ovary.*—The simplest form of ovarian dropsy is that where there is one single large cyst developed in one or other ovary, with very thin walls, and filled with a simple serous fluid. This is the form of the disease which we most desire to meet with in practice, for it is that which is most amenable to treatment, and in regard to which we may always most confidently hope for a favourable termination. Unfortunately, however, the unilocular ovarian dropsy is a very rare type of the malady; for far more frequently we find it presenting itself, as in the case of all the hospital patients you have had occasion to see, in the form of

2. *Multilocular Dropsy of the Ovary.*—In this form of tumour we have not one single cyst, but a vast number of cysts of different sizes, usually, however, with one or two of these greatly predominating in size over the others. Multilocular ovarian tumours may be found of every possible size; and it is among this class that we find those rarer cases from time to time occurring in which the tumour is recorded to have attained to almost fabulous dimensions. At first, however, they are of small size, and the diminutive cysts of which they are made up are all pretty nearly of the same dimensions. The great subsequent bulk of the tumour is usually produced by the excessive development of a few of the peripheral sacs, one or

two of which usually come to be much more distended and prominent than any of the others. It is a matter of very great practical importance to remark and remember, in regard to the growth of multilocular ovarian tumours, at what part of the mass it is that the greatest enlargement of the several cysts generally takes place Fortunately for the prospects of successful treatment, the cyst or cysts which take on the greatest and most rapid growth are, as I have said, those which are placed towards the surface of the tumour, and at its upper and anterior surface. The largest cysts thus, as a general rule, fortunately come to lie, as development proceeds, high up in the abdominal cavity, and closely applied to the internal aspect of the anterior abdominal walls, through which they can most readily be reached by the trocar and canula, and thus most readily evacuated and obliterated. This development of the cysts in the superior and anterior aspect of the periphery of the tumour takes place in accordance with a general pathological law—viz. That the extension of a morbid growth—especially if it contains fluid—goes on most actively in the direction where it meets with least resistance to its increase from the normal anatomical structures of the body.

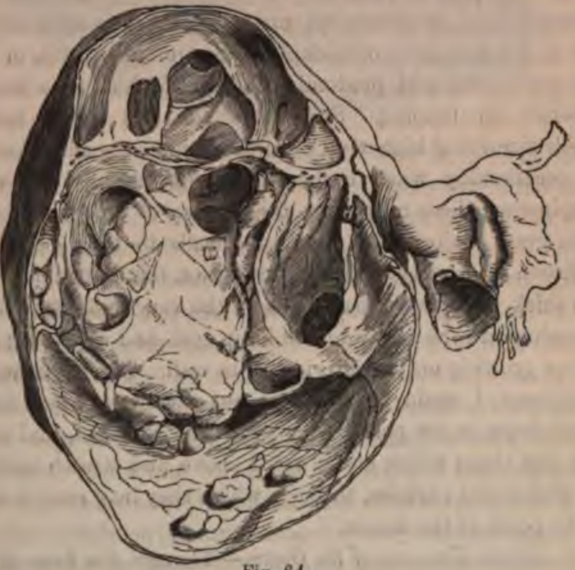


Fig. 64.

Fig. 64. Section of a multilocular ovarian cyst, showing secondary cysts on the walls of the largest primary cyst, and broken-down dissepiments between others.

The firm floor of the pelvis presents an unyielding obstacle to the growth of the tumour in a downward direction, so that the cysts at the lower part of the tumour, having no room to become enlarged and extended, remain, in general, comparatively small and undeveloped; while the cavity of the abdomen, filled only with the soft and mobile viscera, and closed only in front by the distensible abdominal muscular wall, affords free space for its enlargement upwards and forwards. In this direction, accordingly, the development of a dropsical or multilocular ovarian tumour chiefly occurs, and partly by the breaking down of the septa between cysts originally distinct, but more by the secretion into the cysts of a quantity of serous fluid or gelatinous matter, the cystic mass often finally ends in the formation of a single large prominent cyst, or of two or three prominent and predominating cysts, which then become more accessible for tapping. Sometimes you will find a few cysts of smaller size lying higher up even than this large and prominent sac. For occasionally when cysts are at first divided by very thick dissepiments, these may resist the process of atrophy which occurs in the great majority of them, and leads to their destruction, and the fusion of contiguous cells; and then the cysts thus surrounded by a thick wall may remain even in the very summit of the tumour, projecting into the cavity of the large cyst, and appearing like a new tumour growing on the interior of its wall. But fortunately for the practitioner, I again repeat, it is not the cysts which are situated lowest down in the pelvis that grow the quickest, and enlarge the most, but those which are situated above, and stretch up behind the thin abdominal parietes, through which they may readily be reached by the point of the trocar.

3. *Colloid Tumours of the Ovary.*—Though the form of tumour I have just been endeavouring to describe, made up of a multitude of cysts of different sizes filled with fluid or semi-fluid matter, is by far the most frequent in practice, yet there is another variety of cystic degeneration of the ovary that is by no means rare, and in which we have no cysts enlarging to any remarkable degree at the expense of the others, but the whole mass goes on enlarging more regularly, and the cysts are all more nearly equal in size, as may be seen from this drawing of the section of such a tumour. (See Fig. 65.) They are all rather small, separated by thin walls, and contain a gelatinous matter, which does not readily run out when the cyst is opened, so that the tumour maintains a semi-solid, semi-cystic character throughout, and does not collapse when cut across. This is the so-

called colloid tumour of the ovary, and you can easily understand, from what I have just said, how little hope we can have of benefiting such a case by the operation of paracentesis. It is in this class of cases that we meet with most of the instances of unsuccessful attempts at tapping; and the only permanent surgical means is perhaps ovariotomy.

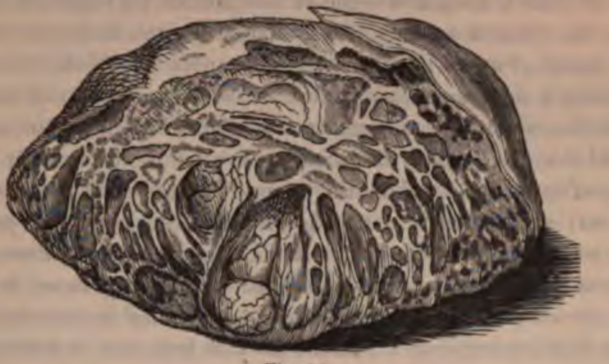


Fig. 65.

4. *Carcinomatous Tumour of the Ovary.*—Then we have a fourth form of ovarian tumour, which is fortunately rarer than most of the others, for it is the least amenable to treatment of any, and from its rapid growth it leads more rapidly to a fatal termination. The ovary is far from being a frequent seat of malignant disease, and when carcinoma does attack that organ, it usually assumes the form of encephaloma, with a number of cysts or cavities filled with a turbid fluid scattered throughout the mass. Sometimes the growth appears to be of this malignant character from the very commencement, but in other cases the malignant disease apparently supervenes at a late period in a tumour originally simple; a degenerative change taking place in the dissepiments of the tumour, which complicates the diagnosis, and compromises still more all the patient's chances of recovery.

5. *Stearoid Tumours of the Ovary.*—There is yet another form of cystic ovarian disease, which is still rarer than any of the others, and regarding which I am not at present going to enlarge. This form of tumour seldom attains any great degree of size, and in a patient who is the subject of it, you can feel a fluctuating cystic portion above, usually of about the size of a child's head, or a little more; and below, in the pelvis, there are some hard, unyielding

Fig. 65. Section of a colloid tumour of the ovary.

nodules, which have all the firmness of a scirrhous mass. When the cyst is tapped, a yellowish creamy fluid runs out, which looks deceptively like pus; but after standing for a time it stiffens, and in part consolidates, and some of the matter that has first escaped may have begun to coagulate ere yet the cyst is fully evacuated. The escape of a few hairs through the canula may be the first object to excite a suspicion in your mind as to the real nature of the case; for if you could have an opportunity of opening such a tumour, you would find most likely a quantity of hairs in it, growing from a piece of true skin, which has become developed on the interior of the sac; and if there is a cross band in the cavity, you will probably find some teeth developed in it. Bones, resembling some of the various bones of the skeleton, are far more rarely found in them; and the cause of the production of all these highly-organised structures in the interior of a morbid growth forms an interesting but very difficult and debateable subject of pathological investigation, on the discussion of which I have no time now to enter. Let me rather pass on to the consideration of the ordinary course of a case of multilocular ovarian dropsy,—as the usual form of ovarian dropsy, —and the different modes in which the common type of the malady may terminate.

It might appear to you an unpardonable omission were I to quit this branch of the subject without saying a word or two in regard to the

NATURE OF THE FLUID CONTAINED

ordinarily in the cavities of a cystic tumour of the ovary. But it is in reality a subject on which I need say but little. There are no deductions of any practical import, so far as I know, to be drawn from the contained or evacuated fluid, except—1. That when we see the fluid mixed with pus, lymph, or other inflammatory products, we form a much less favourable prognosis as to the result of the operation of tapping; and, 2. Where it is thick and gelatiniform, we may fail altogether in drawing it off; otherwise I think you will find that the treatment of ovarian dropsy is but little influenced by the nature of the cystic contents. These contents consist, in general, of a watery or viscous fluid, holding in solution varying quantities of albumen, salt, and fatty and extractive matters. In some cases, also, there is more or less colouring matter; but probably this is never present except where there has at some time occurred an extravasation of blood into the sac. Glistening scales of cholesterine are sometimes seen floating on the surface of the evacuated fluid, and fatty particles and crystals, and degenerated epithelial cells are often found suspended in the contents of ovarian cysts, when these contents are examined by the microscope. According to the greater or less quantity of albumen and other solid matters contained in solution, the fluid is found more or less dense and viscous. It coagulates when heated; and often feels viscid and gluey when rubbed between the fingers, as it escapes through the canal. The density thus varies from 1006 or 1007 to 1035 and upwards; but even in the least dense the quantity of solid residue is greater than in the fluid of ascites or any other form of dropsy. In the case of multilocular ovarian tumours, the contents of all the different cysts are not by any means always equally fluid; for while that of the larger ones may be so thin and watery as to flow readily through a common canula, that in the smaller ones may, and indeed often is, still of a viscid or gelatiniform consistence and character.

But let me now proceed to say something as to the

HISTORY AND PROGNOSIS OF THE DISEASE.

The remarks I am now about to make relate almost entirely to the multilocular form of ovarian dropsy; for it is, I repeat, that form of the disease which meets us most frequently in practice, and is made the subject of the most various modes of treatment. The course which it seems usually to follow is somewhat of this kind. It begins at first as a small enlargement of an ovary, or of a part of one, and presents the appearance of a small tumour made up of an areolar or cellular tissue, containing a number of cysts or sacs of varying size, filled with a simple serous fluid. In proof that the cysts forming the first stage of multilocular ovarian dropsy are, sometimes at least, nothing but the normal Graafian vesicles of the ovary enlarged and distended by fluid, it has been latterly averred in Germany that a true ovulum has been found in them in one or two instances, when they were carefully examined at an early stage of the disease. As the development of a dropsical ovary goes on, and the tumour enlarges, the cysts, and more especially those at the periphery, become more and more distended with fluid, and the septa between the different cells become thinner and thinner, till they finally degenerate and are destroyed, and then the contiguous cells come to communicate and to be fused into the one large cyst or cysts which are, as I have already explained, usually found at the upper part of the mass. The walls surrounding some of the cells, however, always resist the process of degeneration and destruction; and thus there are usually found to be a number of smaller cysts, with strong walls, projecting into the cavity of the larger cell, and appearing like new tumours growing from the interior of its wall; so that the growth of these tumours has sometimes been erroneously described as taking place by the development of small cysts in the interior of a larger mother-cyst. I have spoken of the contents of the cysts as being fluid from the first, but such is probably not the case in the majority of instances; but recent investigations appear to show that in many, if not in most cases, at least, the matter with which the several cysts are filled is not primarily fluid, but more of a gelatinous nature, resembling the contents of the cyst in cases of colloid ovarian tumours. According to this view, indeed, the colloid type of tumour must be regarded simply as usually the earliest stage in the development of the ordinary multilocular dropsy of the ovary, the tumour subsequently attaining its large size by the equable enlargement of an immense number of cysts or cavities filled with a glairy, jelly-like matter, and divided by septa, which, after a time, undergo a kind of fatty degeneration, lacerate, and thus allow of the more or less free intercommunication of several contiguous cysts with each other. The whole tumour, according to this view, retains its semi-solid character, and continues to be elastic to the touch, till a process of softening sets in in the contents of the cavities, which ends in their becoming quite fluid; and as the already altered septa soon give way, one or two large and fluctuating cysts come to be formed, with some smaller ones projecting into their interior. We do occasionally find that an ovarian tumour, into which a trocar and canula have been introduced without bringing away any fluid, have afterwards been tapped, and found filled with fluid, and the explanation of such cases may sometimes depend on such a transformation as that to which I have referred; but it will not always do to wait in every case of colloid tumour of the ovary for the chance of its becoming fluid; and practically, therefore, we must regard them as forming in general two separate kinds of tumour, demanding different kinds of treatment. The manner in which a case of ovarian dropsy may terminate is a subject of much more practical import than the manner in which the tumour originates and grows; and the question of greatest moment in regard to the natural termination of the disease is, whether it is ever cured spontaneously, and if so, whether we have it in our power to imitate the natural process of cure, and produce such a cure artificially. Let me, therefore, discuss with you for a little, the manner in which Nature sometimes brings about

1. *Spontaneous Cure of the Disease.*—That spontaneous cures do sometimes occur, is a matter, I would first beg to remark, as to which there can be no doubt. You will occasionally, though very rarely indeed, find patients getting well who have enormous ovarian tumours in the abdomen, and who are apparently in the most desperate condition, with the tumour compressing all the abdominal viscera, and interfering with their functions, and causing obstruction even to the organs of circulation and respiration. Such patients sometimes obtain sudden relief from their sufferings, and the ovarian tumour becomes rapidly diminished in size, from its opening at some weak point, and discharging its contents into the abdominal cavity or on some mucous canal having an external outlet. It has been found, even, that while the tumour is still very small, it may be completely cured by its passing between and expanding the layers of the broad ligament till it reaches the Fallopian tube, when it bursts, and its contents escape along the tube, and are discharged through the uterus and vagina. This is a mode of cure which has only begun of late years to be understood and appreciated ; and it is not long since a student in Paris obtained a prize for pointing out the frequency with which it actually occurs. He obtained his proofs of its frequency by a series of careful dissections on the dead body ; cases in which the smaller forms of ovarian tumours are found not being very rare in the anatomical rooms. Sometimes, but very rarely, an ovarian cyst empties itself by opening into some part of the bowel or the bladder. Before such an evacuation can occur, a degree of adhesive inflammation must first have been set up in the peritoneum, leading to a union of the wall of the tumour with the wall of the hollow organ with which it is to communicate ; and then the communication is produced by an ulcerative process subsequently occurring in this intermediate wall of union. Cases of this kind are from time to time recorded, but they are of very rare occurrence indeed ; and it is a process of cure which we have no certain means of imitating artificially. We can only reach an ovarian cyst through the vagina or the abdominal wall ; and I know of no authenticated case where an ovarian tumour emptied itself by perforation of the vaginal walls themselves ; while evacuation through the abdominal walls has seldom or never occurred except as a result of violence exerted from without. The manner in which nature most frequently effects a cure is altogether different.

The cyst ruptures simply into the abdominal or peritoneal cavity, where fortunately, if its contents are not of an irritating kind, they do not give rise to inflammation of the peritoneum, but are speedily absorbed by that membrane. There is a patient living in the immediate neighbourhood of this city, who had been the subject of ovarian dropsy for many years, and had been tapped about forty times, great quantities of fluid having been drawn off in the course of her long-continuing disease. Six or eight years ago she went out to feed some birds on a frosty day, when there was ice upon the ground; and having stepped incautiously upon the ice, her feet slipped and she fell suddenly forward, bringing the abdomen violently into contact with the ground. Not having been tapped for some time previously, the dropsical swelling was large at the time, and the cyst being burst by the concussion of the fall, its contents were discharged into the abdominal cavity. From that time to this the tumour in that patient has remained in such a state as to preclude all further necessity for tapping, and it becomes an interesting and important subject of investigation to determine what changes have been produced in such a case. What has happened in this patient is, I believe, this—the cyst having ruptured, its contents escaped in part into the abdominal cavity, and this effused portion became absorbed from the peritoneal surface. The walls of the cyst, however, continued to furnish forth a new quantity of fluid, some of which escaped through the unclosed opening and was likewise absorbed, and the lacerated orifice being thus kept open by the fluid that escaped through it, it was prevented from healing entirely, and a communication has come finally to be established between the interior of the cyst and the abdominal cavity, by which the fluid that continues to be secreted in the former passes on to be absorbed in the latter. The internal surface of an ovarian cyst, in short, is to be regarded as a surface with a great power of secretion, while the peritoneum presents an extensive surface, possessed of a great power of absorption; and when a free and permanent orifice of communication is established between them, a balance is kept up of secretion on the part of the interior lining of the cyst, and of absorption on the part of the serous lining of the abdominal cavity—which prevents the further accumulation of the fluid, keeps the patient in a state of comparative good health, and renders unnecessary all kinds of surgical interference. A similar result to that which we have found to occur in this patient has been seen in other cases also, where the cyst has been ruptured as the result of an injury ; and such an explanation as I have attempted to give of the process of cure in this case is no doubt applicable to the great majority of instances of spontaneous cure of ovarian disease that have been put upon record.

2. *Death from Rupture of an Inflamed Cyst.*—Rupture of an ovarian cyst, however, is not always such a simple and innocent accident, and it does not always lead to a cure of the disease as its necessary result. On the contrary, it is sometimes followed by an immediate attack of acute peritonitis, and a speedy death may be the consequence. Whence comes the difference? How is it, that in one patient rupture of an ovarian cyst and the effusion of its contents into the abdominal cavity leads to simple absorption of the fluid and a rapid recovery from all the symptoms of the disease ; while, in another patient, the same accident brings on an attack of peritonitis, and proves quickly fatal? The solution of the enigma is to be sought for, I believe, in the character and constitution of the contents of the cyst at the date of the laceration. If the sac be filled with a simple, bland, albuminous fluid, pure and unirritating—if, more particularly, the interior of the sac have never previously been the seat of an inflammatory process, and no inflammatory products have become mixed with its contents, then, when rupture of the walls occurs, these contents may flow out, but no bad consequences may ensue, because the fluid causes no appreciable amount of irritation, but merely becomes absorbed by the peritoneal surface. But if, on the contrary, the lining membrane of the sac be inflamed at the time, or have been the seat of inflammation, or hemorrhage, or other pathological changes, at any previous period—if, more especially, pus or other morbid products have been thrown out as a result of the inflammatory changes, and become mingled with the dropsical fluid—then, when such a deteriorated fluid is discharged into the abdominal cavity in consequence of a rupture of the cyst, it infallibly causes a high degree of irritation in the peritoneal membrane, and lights up an inflammation there that is almost certainly fatal. So that the final issue of any accident to a dropsical patient, which leads to rupture of the ovarian sac and effusion of its contents into the abdominal cavity, depends entirely on the condition of these contents ; whether, namely, they be simple and innocuous, or altered and irritating from the admixture in them of inflammatory, or, it may be, of other morbid products.

3. *Death from Exhaustion and the Effects of Pressure.*—Such

cases as I have been describing, may perhaps be regarded as exemplifying terminations of the disease, which it is but seldom that we have occasion to witness in practice: for the cases where a spontaneous cure is effected by a laceration, or succession of lacerations, of the sac, which enables nature to reduce and keep reduced the watery collection, are of rare occurrence; and nearly equally rare are those in which death results from the spontaneous or accidental bursting of an inflated cyst. There is no evidence, at all events so far as I know, that any favourable termination is ever put to the progress of this disease by any change that may take place in the interior of an unruptured cyst; and there is certainly no evidence to show that the dropsical fluid is ever absorbed from the interior of the cyst by the agency of its own lining membrane. We know that that membrane is possessed so far of the power of absorption, that when tincture of iodine is injected into the cavity, it becomes absorbed, and may be excreted by the kidneys and the skin, and exhaled at the lungs. But with relation to its own fluid, it seems to be possessed only of a secreting power; and the law holds good as regards every case of ovarian dropsy that I have ever seen, that no degree of absorption occurs spontaneously under any circumstances, or can be excited artificially by any means at our command. Diuretics or drastics, even the most powerful, are of no avail in this form of dropsy, and never lead to the absorption of the fluid in the interior of an unruptured cyst. In cases of ascites we know that these remedies are often of the greatest value; and when a cyst has been torn, and its contents have escaped into the abdominal cavity, their action may be made use of for the purpose of aiding the absorption of the fluid from the peritoneal surface by procuring and promoting its speedy and steady elimination; but even then their effect is only indirect, and is not the immediate exciting cause of the absorption of the dropsical fluid. Resorption of the fluid by the walls of the ovarian cyst or cysts does not occur naturally, and cannot be excited artificially, and therefore a simple reduction in the size of the tumour is an event that we cannot rationally look for. In the vast majority of cases of the disease its progress is very different. If left to take their own course, the cysts go on filling and enlarging, pressing on the abdominal organs and interfering with their function, so that the patient's strength becomes gradually exhausted, and she at length dies of inanition or atrophy; or of inanition and irritative fever combined; or from the effects of the pressure of the tumour upon the diaphragm and the abdominal blood-vessels. The obstruction thus caused to the circulation leads to anasarcous effusions into the lower extremities, which we generally in vain try to reduce by exciting the action of the kidneys, for their own excretory function is greatly impeded and impaired; and respiration at last becomes almost impossible, because the gradually diminished action of the diaphragm cannot be compensated for by the action of the thoracic walls, which are themselves altered in form, and distended at the base to their uttermost. In a patient thus emaciated and exhausted, death may at any time ensue from the slightest disturbance of any of the ordinary functions of the body, and it is sometimes ushered in by a certain degree of hectic fever. For we do sometimes see patients die in this way from the effects of the growth of the tumour, which has gone on enlarging in spite of all treatment. But we almost never in practice see an ovarian tumour go on growing in this manner, distressing the patient by its pressure on the abdominal organs, and tending to her destruction by the consequent impairment of their functions, without attempting to do something to afford her, at least, temporary relief, and to prevent her immediate death. And, as a result of such artificial interference, we find a frequent termination of the disease in

4. *Death from, and in despite of, Paracentesis.* — An ovarian tumour, like the gravid uterus, as it enlarges and expands, pushes the bowels on before it, and presses them upwards and to either side, keeping itself always in immediate contact with the internal surface of the abdominal wall, so that when the effects of its pressure have come to be so great as to produce much distress or even to threaten death, it seems but a slight matter to push a trocar and canula into it, and so to evacuate the accumulated fluid. The patient is accordingly tapped, and it may be with immediate relief, and sometimes, though very, very rarely, with final cure; but, as a result of this apparently simple operation, we may also, sometimes, unfortunately find that inflammation of the sac supervenes, and leads to more speedy death. Even when no untoward symptoms are developed, the good effect is usually only of very short duration, for the fluid more or less rapidly reaccumulates and calls betimes for a repetition of the operation. As this alternation of accumulation and evacuation of the fluid continues, the patient becomes more and more emaciated, and the face assumes a peculiar, drawn expression from the atrophy of the fatty tissues, and the development of the facial muscles, more particularly of those around the mouth, so

that at last you can almost tell the nature of the disease from looking at the patient's countenance. The tapping requires to be repeated again and again; more or less frequently in different cases; but always as a general rule with shorter and shorter intervals as the disease lingers on, till finally the patient dies exhausted. The immediate cause of death may thus be found, though that is rare, in a form of hectic fever; more frequently it is a low type of inflammation set up in the cyst from the irritation of the oft-repeated operation; but usually it is to be found in the slow and gradual, but at last complete, prostration of all the powers of nature. This final fatal result ensues in the great majority of cases within five years from the date of the first tapping. Sometimes the patient lingers on for eight years; very rarely, indeed, does she live beyond that period; and the number of those who die in less than five years is far greater than the number of those who live beyond it. A large number sink within the first year after tapping is first begun. A considerable proportion die of the immediate consequences of the first paracentesis—that is, within a few days after that event.

LECTURE XXVI.

ON OVARIAN DROPSY.—ITS SYMPTOMS AND DIAGNOSIS.

GENTLEMEN—In my last lecture I spoke of some of the leading points in connection with the pathological anatomy of cystic diseases or dropsies of the ovary, and showed you that they sometimes, though rarely, assumed the unilocular form—that by far their most frequent type was the multilocular—that in some cases the malady appeared in the form of a colloid growth—and that, lastly, it was sometimes combined and complicated with malignant disease or degeneration of the component walls of the cysts. Before passing on to the consideration of the Symptomatology of the disease, let me only state in addition here, that there has been a great deal of discussion as to the probable causes, or

THE ETIOLOGY OF THE DISEASE.

Now this is a point regarding which our positive knowledge amounts to almost nothing. We do not know why an ovary ever enlarges and assumes this form of morbid growth or dropsy; nor why the tumour should take on a different type of development in different cases. We know that the disease occurs alike in the married and in the unmarried; and when present in the former it does not always form a necessary hindrance to the occurrence of impregnation. Sometimes ovarian dropsy is found to be associated with an overturn of all the menstrual functions; but in many cases these functions are carried on, in the earlier stages, at least, of the malady, unaltered and unimpaired. Age seems to have little specific influence; for although the disease is most frequently seen between the ages of thirty and forty, yet it sometimes does not occur, or, at least, is not observed till much later in life, and till the function of menstruation has long passed; while again, in other instances, you will occasionally find the malady fully developed by the twentieth or twenty-fifth year of life. In some few and rare cases ovarian dropsy seems to be hereditary, being developed in one or two females in successive generations of a family. I have known the disease affect three sisters in a family. The right ovary is somewhat more frequently affected than the left. Both ovaries may be simultaneously diseased, and in that case we usually find one preponderating greatly in size over the other; but I know of no satisfactory reason that has been given to explain why the one should become the seat of the disease in any case in preference to the other. The fact that both ovaries are not unfrequently affected in the same patient is a strong reason for the belief that the malady has its origin often, though it may not be always, in constitutional rather than in local causes and changes. But, I again repeat, we know as yet little or indeed nothing, regarding the etiology of ovarian dropsy, and let us pass on to the consideration of

The Symptomatology of the Disease.

In studying the symptoms of any disease of the organs of generation, the first point for inquiry is, as to whether there be any particular disturbance of the functions of these organs, which should lead us to guess at the probable occurrence of the special disease.

1. *Functional Derangements of the Generative System.*—You will greatly err, let me at once tell you, if you expect to find any particular disturbance of the generative organs, or any special and constant interference with their functions in connection with ovarian dropsy, dependent on the presence of that disease, and, therefore, indicative of its occurrence. The strangest mistakes have often enough been made by those who have become possessed of erroneous ideas upon this point, and the most unmistakeable cases of the disease have been altogether misunderstood in consequence. I once saw a case, where the nature of the disease was most evident, and the merest tyro could have diagnosed it correctly, and with certainty by physical diagnostic means; yet the old and excellent practitioner who had charge of the patient could hardly be convinced that the case was one of ovarian dropsy, because the menstrual functions were unaffected, and altogether normal. That these functions may proceed naturally and normally in cases of this disease is a fact, then, that you would do well to impress upon your memory. Often enough, indeed, these functions are interfered with; and they may be altered in every possible way. The catamenia may be suppressed and the patient has amenorrhœa—a condition of little moment as a diagnostic mark, particularly in those who have passed the climac-

teric period of life. Or, on the other hand, the flow may be excessive—though such a form of altered menstruation is of more rare occurrence—and the patient suffers from menorrhagia. Or the performance of the function may be attended with pain; and the patient is the subject of ovarian dysmenorrhœa. Any of these deviations from the normal course of menstruation may be found present in any case of ovarian disease; but often enough we can find none of them; and, most certainly, no one of them can be regarded as in any way pathognomonic of the disease. In short, all our knowledge of the matter amounts to this—that the menstrual functions may be found quite natural, especially in the earlier stages of the malady: or they may be perverted in every possible way. But does the disease not interfere, you may ask, with the other functions of the generative organs? Though the uterine hemorrhagic secretion be duly furnished, may not the product of the ovary be withheld and sterility result from the ova not being formed, or not finding their way into the cavity of the uterus? Even here there is not necessarily any disturbance, for patients affected with ovarian dropsy occasionally become pregnant and bear children; though, assuredly, in a smaller proportion than married women who are free from all disease. Many years ago, in investigating the subject of the alleged comparative sterility of females born co-twins with males, I had occasion to estimate the proportion of barren women among ordinary married females in general society, and I found that about one in every ten was sterile. In the case of married persons suffering from ovarian dropsy, the proportion of childless to child-bearing patients is usually estimated as one to three or four; so that the presence of the disease has a marked effect upon the chances of conception. But the disease, I repeat, does not necessarily prevent impregnation, even when the ovary is very much enlarged. If, then, you try to lay down any rule as to the diagnosis of ovarian dropsy, founded upon aberrations in the functions of the generative organs—that is to say, in the functions of menstruation, conception, and pregnancy—you will fail completely; for, as I have said, there is no deviation or disturbance of these functions found in such constant connection with the disease as to make it of any sufficient value as a diagnostic sign.

2. *Constitutional Symptoms.*—Some authors have spoken of nausea and vomiting as symptoms indicative of the presence of ovarian tumours; and patients who are the subject of them do suffer, not unfrequently, from disorder of the stomach. But nausea and

vomiting do not, by any means, necessarily or even frequently occur when the ovary becomes enlarged and dropsical; and these same symptoms too frequently result from other causes to be of any value as a sign of this form of disease.

3. *Local Mechanical Symptoms.*—The earliest indications of any certainty seen in connection with the development of an ovarian growth, are usually the symptoms produced by the pressure of the tumour on the surrounding pelvic organs; and they are thus all chiefly of a mechanical kind. Thus the patient may complain of a numbness and relative weakness of one of the lower extremities, caused by the pressure of the tumour on the sacral nerves of the limb. Or she has a feeling of dragging, or of a weight in one or other side, from the stretching of the ovarian and uterine ligaments, and the size of the enlarging growth. From its pressure on the bladder, again, the tumour may give rise to dysuria; or it may interfere with defecation, from its pressure on the rectum. But the existence of these symptoms is not at all enough to entitle you to decide upon the presence of an ovarian tumour; for you may have mechanical irritations and injuries of precisely the same kind from totally different causes. In short, there are no rational symptoms on which you can depend as pathognomonic of the presence of an ovarian tumour. This observation holds good for almost every form of disease to which the organs of generation are liable; and for ovarian dropsy, as for all the others, you can, as a very general if not a universal law, never make perfectly and practically sure of the real nature of the case without having recourse to

PHYSICAL DIAGNOSIS.

The physical signs of ovarian dropsy vary according as the tumour is in the first or second stage of its growth—according, namely, as it still is limited in size, and lies in the pelvic cavity, or has enlarged and ascended above the pelvic brim and begun to occupy a space among the abdominal organs. For I must here remark—as perhaps I ought to have done sooner—that when the tumour is small in size it still lodges within the pelvis, and it does not rise into the abdominal cavity until it has attained such dimensions that there is no longer any room for its expansion within the pelvic cavity. We see the same phenomenon in the case of the retroverted uterus when it becomes impregnated; for, instead of rising gradually into the abdominal cavity, it remains hidden in the pelvis till about the fourth month of utero-gestation and then ascends, sometimes almost suddenly, into the more roomy abdomen above.

I. WHEN THE TUMOUR IS STILL IN THE PELVIS.

It is comparatively rare that the advice of the medical practitioner is required for a cystic ovarian tumour while the tumour is still of such small dimensions as to find space enough for its development within the confines of the pelvic cavity. The mere mechanical symptoms produced by pressure and irritation upon the neighbouring pelvic organs, sometimes induces the patient to consult her medical attendant, and the diseased ovary may be thus discovered by a vaginal examination while still early in its course. There are also other cases in which cystic tumours of the ovary become the objects of diagnosis and treatment while still small, and contained within the pelvic cavity; as, for example, when the tumour happens to be attacked with inflammation and becomes the seat of pain, or where the patient has become pregnant and the ovarian growth is found obstructing the passage of the child when the time comes for her delivery; or, when the enlarged ovary has changed its place and fallen down into the bottom of the peritoneal sac between the rectum and the vagina. It is certainly not very common to meet with a simple cystic tumour of the ovary small enough to be lodged within the pelvis, maintaining its normal position up at the inlet of the cavity, and yet causing so much distress to the patient as to lead her to seek for medical aid. But when, instead of remaining at the brim and enlarging towards the abdominal cavity, the tumour sinks down into the lower part of the pelvis, then its presence comes to interfere with the function of the pelvic organs, and may prove a source of great discomfort and distress. Such displacements of the ovary, as you know, have been shown by Dr. Rigby to be of not unfrequent occurrence, even when the organ is healthy and unchanged; and if the normally-sized ovary proves a source of annoyance to the patient when it prolapses down upon the roof of the vagina, it will only distress and annoy her the more when, in addition to being displaced, it is at the same time increased in size. When such a dislocation of the ovary occurs, where is it to be found? When the ovary, in enlarging maintains its normal position at the inlet of the pelvis, it is felt, per vaginam, to lie mostly to one or other side of the uterus, and somewhat behind it; and if the enlargement have gone to any considerable extent the uterus will most likely be found displaced, being pushed forward and lying to one or other side. But when the ovary is dislocated the uterus is felt to be in its normal situation, while at the upper part of the vagina, behind the cervix uteri, the exploring finger comes into contact with an unusual projection, due to the presence of the prolapsed organ in the recto-vaginal fold of the peritoneum. For, you will please to remember, the ovary is attached to the broad ligament on its posterior aspect, and when such a relaxation of the ligament of the ovary itself occurs as to permit the ovary to fall out of its place, it necessarily falls backwards and downwards behind the uterus till it comes to rest, as I have said, in the sac of the peritoneum, which is known as the cavity of Douglas. There it forms a tumour oval in form, and readily moveable with the finger, projecting into the posterior cul-de-sac of the vagina on the one hand, and on the other pressing upon and partially occluding the cavity of the rectum. The situation, the form, and the mobility of the tumour, more especially when conjoined with the peculiar sickening pain which is sometimes produced in it by pressure—a pain resembling in character that which results from pressure on the testicle—will usually serve to guide you to a correct diagnosis of the nature of the case. But to attain absolute certainty something more is required; for a tumour situated on the back wall of the uterus, or even the fundus of the retroflexed uterus itself, might be found to present all the characters of which I have spoken, and to distinguish between such tumours and a prolapsed ovary, you must endeavour to ascertain whether the tumour moves consentaneously with the uterus; or whether it is still capable of free and independent motion after the uterus has been fixed. With this view you must keep the finger always in contact with the cervix uteri, while testing the degree of mobility of the tumour; or, better still, you must introduce a sound into the cavity of the uterus, which will at once dispel all doubt as to the probability of a retroflexion of that organ, and by which you can keep the uterus steadily fixed, while with the finger you ascertain whether or not the tumour is still freely moveable. If, let me add, you find the tumour to be soft and fluctuating, your certainty as to the nature of it will be all the greater, and in such a case you would rightly conclude that the organ had begun to be the seat of a cystic degeneration.

II. WHEN THE TUMOUR HAS ENTERED THE ABDOMEN.

Usually, however, it is not till an ovarian cystic growth has risen above the brim of the pelvis, and ascended into the cavity of the abdomen so as to have become partially or entirely abdominal, that the disease gives rise to symptoms of such urgency as to lead the patient to seek for medical advice or aid, and then you will have to make out the nature of this abdominal tumour. In attempting to do this there are various points to be attended to.

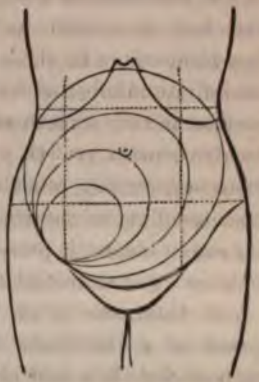


Fig. 66.

1. *The Position of the Tumour.*—Reasoning hypothetically only, you might think it would always be easy to distinguish between an ovarian and a uterine tumour by finding the former lying to one side of the abdominal cavity. The uterus you know to be placed in the mesial line of the body, while the ovaries are situated on either side, and you might naturally suppose that in enlarging the organs would maintain these respective positions. Such actually does occur in some cases, and to a certain extent. You will sometimes be guided to a direct diagnosis of the existence of an ovarian tumour by being told by the patient that she noticed it first in one or other side, and in the lowest part of the abdomen. But when the tumour has attained such a size as to cause it to interfere seriously with the functions of the abdominal organs and the diaphragm, and to bring the patient into such distress or danger as to induce her to seek your aid—and, let me warn you, the tumour may sometimes have attained to a great bulk before the patient begins to be aware of its existence—when, I say, the ovarian tumour has come to be of considerable dimensions, then it is very often found to occupy a position in the cavity of the abdomen, which is at least as central as that of the gravid uterus; and if the patient have not had her attention attracted to the first beginning of the growth, all observation of its position may only serve to lead you astray in your diagnosis. An enlarged

Fig. 66.—Showing the lateral position of ovarian tumours in their earlier stages, as contrasted with the central position assumed in the later stages of their growth.

ovarian cyst, I repeat, may come to fill up the whole of the abdominal cavity, and to press forward the walls equally on both sides of the mesial line; while on the other hand, you must remember that the gravid uterus is very frequently somewhat lateral; and where this deviation was very distinct, as is not unfrequently the case, the pregnant uterus has been tapped under the impression that it was a dropsical ovary.

2. *Form of the Tumour.*—The tumour may vary in form, but it is usually more or less rounded or spherical. Often its surface feels smooth and equable; but often, also, it is unequal in its form and bossellated on its surface from the projections and protuberances formed by the unequally enlarging cysts. When development has taken place to such an extent that the small cysts have all coalesced to the formation of a single large one, the surface is perfectly regular, and feels as smooth and even to the touch as the surface of the gravid uterus. In those cases also where the tumour is made up of an infinite number of very small cysts filled with a glairy fluid, the surface is very smooth and unbroken. But in the ordinary multilocular ovarian growth you can usually trace on the surface indentations surrounding protuberances of larger or smaller dimensions, and corresponding to the walls of the subsidiary cysts. Sometimes, in its earlier stages, it presents an irregular mass, as if a series of large balls or cysts were tied together within one investing membrane.

3. *Consistence of the Tumour.*—When still small, or when composed of a multitude of separate and distinct cysts, an ovarian tumour feels firm and elastic; but, usually, when a patient comes to consult a practitioner, it is already soft and fluctuating. The feeling of fluctuation is in most cases unmistakeable; but you must bear in mind that when the quantity of liquor amnii is very great the gravid uterus will likewise be felt to give a feeling of fluctuation; and, besides, the elasticity of solid tumours sometimes comes to resemble fluctuation in a most deceptive manner. The colloid tumour of the ovary—that which is made up of many small cysts, and which usually is only elastic to the feel—may sometimes be so soft and fluctuating as to lead you to tap it under the idea that it is formed of one or two large cysts; and even a soft fibroid tumour of the uterus, when infiltrated with fluid, may yield a deceptively fluctuating feeling. Besides, if you lay too much stress on fluctuation as a diagnostic sign of ovarian dropsy, you may sometimes be led into error by mistaking encysted ascitic collections for examples of this disease. In short, the observations I have been making in regard

to the physical characteristics of ovarian tumours are only sufficient to guide us to the discovery of a case, without enabling us to recognise it with certainty. A positive diagnosis is only to be arrived at by remembering the various forms of disease with which ovarian growths may be confounded, and by knowing how to distinguish between them; and, therefore, the hints that I have still to offer for your guidance will best be classified under the head of the

DIFFERENTIAL DIAGNOSIS OF THE DISEASE.

There are a great many pathological products, and many physiological conditions of the pelvic and abdominal organs as well, with which ovarian tumours are very liable to be confounded, and for which they are very frequently mistaken. In what I am about to say, however, I shall not enter into a discussion of all the signs and symptoms of these several morbid and functional changes, but must content myself with pointing out in what they differ from ovarian tumours, and by what means the distinction may most readily be made between them.

1. *Retroverted Unimpregnated Uterus.*—When an ovarian tumour is still of small dimensions, and is still contained within the pelvic cavity, one form of disease with which it may readily be confounded is retroversion of the uterus. I have not yet had occasion to direct your attention to the displacements of the womb; but I may so far anticipate my remarks on that subject, as to say that a very frequent kind of displacement is that in which the whole organ is turned backwards, or retroverted, or in which it is bent backwards upon itself, or retroflexed, so that the fundus comes to lie in the Douglas' space, where it can be felt by the finger on making a vaginal examination. Unless when bound down by inflammatory adhesions, it is readily movable in this position; and as the mechanical and functional disturbances which it produces are the same in character and kind as those caused by a small ovarian tumour which has descended into the same situation, it is not always easy by the mere touch of the finger to make a definite distinction between them. The great mark of distinction between the two diseases is that when the body, felt through the posterior portion of the roof or cul-de-sac of the vagina, is moved with the finger, a consentaneous movement is produced in the whole uterine organ in the case of retroversion, while the tumour and the uterus are each capable of a distinct degree or amount of independent movement when that

tumour is of ovarian origin. If the finger be kept in contact with the cervix uteri, when movement of the doubtful body is attempted to be made, the consentaneous or independent movement of the uterus may usually be easily recognised. But to make sure of your diagnosis you may require to introduce a sound into the cavity of the uterus; and if the case be one of retroversion of that organ, you will find that the sound, instead of passing upwards and forwards, as it always does when the uterus is in its normal position, passes nearly directly backwards, and by simply turning round the instrument after it has been passed in this unusual direction, you can make the supposed tumour disappear, if you should find this step necessary to complete the diagnosis; for by this means the displacement is rectified, and the womb restored to its proper position. On the other hand, if you have to deal with an ovarian tumour, you will find that the sound passes readily upwards and forwards behind the pubis, and when it has been thus introduced into the interior of the uterine cavity, you can use it to fix the womb with perfect certainty, while the tumour remains freely movable in every direction. Should the retroversion be complicated, as it sometimes is by the presence of a small fibroid tumour of the uterus, growing from the posterior wall, its fixity when the uterus is fixed, and its consentaneous motion when the uterus is moved, will prove its connexion with the organ, and prevent your falling into the error of mistaking it for a small cystic tumour of the ovary, an error which has been often committed.

2. *The Gravid Uterus.*—Perhaps there is no mistake more frequently made in connection with the diagnosis of ovarian tumours than that of confounding them with the enlargement of the uterus consequent on impregnation. Patients have often been suspected and pronounced to be pregnant when they were the subjects of ovarian dropsy; and, on the other hand, the more dangerous error has often been fallen into of supposing the patient to be the subject of so grave a malady when she was merely in an advanced stage of utero-gestation. Many years ago, perhaps thirty or forty, a case of this kind occurred, where a female, with an abdominal tumour, was supposed to be the subject of an ovarian tumour, and where it was decided that the best hope of a successful termination was to be obtained from the operation of ovariotomy. Several gentlemen, who ought perhaps to have known better, saw the case and concurred in their diagnosis, and in their opinion as to the propriety of performing the operation. The day was fixed and everything

prepared for the operation, when the patient saved herself all the horrors and dangers of it by giving birth to a baby a few hours beforehand, dispelling most satisfactorily and efficiently the supposed morbid growth. Such an error was more excusable in those days, when obstetric auscultation was still unknown, than it would be now that we can have such a certain sign of the existence of a fœtus as the sounds discovered by the stethoscope. The sounds of the fœtal heart enable us now to recognise a case of pregnancy in the later months, and prevent us from mistaking it for one of ovarian tumour, in which no sound at all is heard on listening with the stethoscope. But even in the use of the stethoscope there is a possible source of error against which you must be warned. The sounds of the fœtal heart are usually recognised by the rapidity of the beats, 120 or more in the minute. But when you apply a stethoscope over an abdominal tumour, and hear through it heart-sounds beating at the rate of 120 or 130 times in the minute, you must not immediately decide these sounds to be undubitably of fœtal origin, and thence conclude on the existence of pregnancy. The frequency of the pulsations is not always enough. The late Dr. Merei, of Manchester, once brought a patient for me to see, who had an abdominal tumour, the nature of which it was rather difficult to determine. From palpation and vaginal examination I had a conviction that the tumour was of ovarian origin, but on listening with the stethoscope we could hear beatings in it between 120 and 130 in the minute. These sounds were very like the pulsations of the fœtal heart; but on applying the finger to the patient's pulse at the wrist found her heart to be beating at this same rate of frequency. The sounds were not those of a fœtal heart, but of the patient's heart, transmitted through an ovarian tumour. Whenever, therefore, you hear a pulsating sound in the abdominal tumour, however rapid or however slow, you must always carefully determine whether it corresponds or not to the impulse derived from the patient's heart, before you can decide as to its fœtal or maternal origin. Other points of difference between ovarian tumours and the gravid uterus have been insisted on, but the great distinction, as I have been saying, is the absence in the former of those fœtal heart-sounds which are usually so distinct in the latter; and all other marks of distinction are of such secondary importance that I need hardly enumerate them. The rapidity with which the pregnant uterus enlarges is usually so much greater than is seen in the case of ovarian growths, that it may sometimes serve to aid the diagnosis. But in using it you must bear in mind that the ovarian tumour, in some cases, grows as rapidly in size as ever the pregnant uterus does. Then, in pregnancy, you have further the placental bruit; and, on making a vaginal examination, you can produce the movements in the womb which is described as *ballottement*, both of which signs are absent in ovarian growths.

3. *Fibroid Tumours of the Uterus.*—Another form of disease which it is sometimes difficult to distinguish from ovarian tumours, is one of which you have a specimen in the ward in the case of a woman who is the subject of an abdominal tumour of the size of a large adult head, rounded in form, and lying somewhat towards the right side. This tumour has very much the form and the appearance of an ovarian growth, but by studying the distinctive marks which I am about to explain to you, we have come to the conclusion that it is not cystic and ovarian in its origin, but that it is solid and grows from the uterus,—that it is, in fact, a large fibroid tumour of the uterus. From mistaking such a growth for a cystic ovarian tumour fatal practical errors have sometimes been fallen into; for it has repeatedly happened that surgeons, and men of high standing in the profession, believing they had to do with a case of ovarian tumour, have opened the abdomen and removed a morbid mass. After performing this operation, as they imagined, of ovariotomy, when they came to examine the tumour they have found that they had not performed that operation at all, but had extirpated a large pediculated fibroid tumour of the uterus. That operation, I need hardly add, has almost invariably ended fatally. In other cases, the abdomen has been laid open, and the operation suspended because the disease was found not to be ovarian dropsy, but a fibroid mass embedded in the walls of the uterus. To prevent you, if possible, making such a great and grave mistake, let me request your especial attention for a few moments, while I briefly enumerate and explain the several signs and points of distinction which will enable you to establish a correct differential diagnosis between these two forms of disease.

a. Difference in Consistence.—Fibroid tumours are solid, massive, and heavy, for they rarely contain cysts or cavities, but are usually made up entirely of solid fibrous tissues, and when such a tumour is not fixed by inflammatory adhesions, you can usually discover this characteristic of its consistence by moving it from side to side through the abdominal wall, or by examining it simultaneously through the vagina and from the external surface. I have just said that fibroid tumours of the uterus only rarely contain cysts. Let me add that these cysts are never large. But a large fibroid sometimes grows loose, as it were, uncompact, and œdematous, and presents an imperfect and deceptive feeling of fluctuation—a state of matters, however, which is very far from being common. Ovarian tumours, on the other hand, are soft and fluctuating in the majority of cases that come before you; that is, when the smaller cysts have coalesced to the formation of one or two prominent and preponderating cavities. But when the tumours are still small, and made up of a mass of little cysts, they are more dense and elastic, and if, in making your diagnosis of such a tumour, you depended too much upon the consistence of it, you would be extremely apt to fall into error, against which you must guard yourselves by attending to other distinctive marks, such as

b. Difference in Outline.—Although on ovarian tumours one or more projections or protuberances are often to be felt on the surface, indicating separate primary cysts, or the position of secondary cysts on the wall of the larger and principal cavity or cavities, yet, on the whole, the surface is felt to be comparatively equable and smooth. Large fibroid tumours, on the contrary, are more rough and nodulated, being made up usually of a large number of small fibrous nodules; and even where one of the masses has come to be developed so much more than all the others as to present a large extent of smooth, uninterrupted surface, you can still frequently find a number of small fibroids growing up beside the large one. Fibroid growths of the uterus seldom, indeed, occur single. The walls of the uterus usually contain several of them at once, in different states of advancement and size. The smaller fibroids sometimes are placed on the surface of the larger of the series. More frequently they can be felt, like hard balls or masses of varying shape, seated upon or springing from other parts of the uterine surface. We never have this last characteristic symptom in ovarian dropsy—never, that is to say, smaller tumours quite separate from the large tumour. When a group of fibroids is present, the tumour which they form is usually, also, far more irregular in shape, and much more angular in outline than the comparatively spherical tumour usually formed by dropsy of the ovary. The indications derived from the contour of the tumour are thus among the most certain signs of its real nature. But they are not always to be entirely depended on. For, on the one hand, when fibroid tumours take on an enormous degree of development, and the distinctions between

.—Formerly, I
he existence
ind the
same posi-
e walls of the
I imagined that
up a position in front
ses in which an ovarian
ving passed round the uterus,
ained a position in front of it,
der.

Uterus.—Perhaps one of the most cer-
e signs of fibroid tumours of the uterus, as
varian growths, is elongation of the cavity of
is very generally present in connection with intra-
mucous fibroid tumours. This elongation you can
passing the uterine sound. When examining a uterus
the seat of an intramural or submucous fibroid tumour,
ll find that the instrument can be pushed much farther into
cavity than in cases where the womb is unaltered, and you can
determine that the organ is spun out and enlarged like the
gnant uterus, so that, instead of being only two and a half inches
g, it admits the sound for a distance of three, or even sometimes as
as six or eight inches. Such a decided enlargement of the uterus
have never found among all the many cases of ovarian dropsy
at I have had occasion to examine, and I regard it as of itself
sufficient to show the tumour to be uterine and not ovarian

its constituent masses become diminished, they may, as I hinted a minute ago, come to feel almost as smooth and equable as any cystic tumour; and when, at the same time, they become soft from the infiltration of fluid, as sometimes happens in such cases, the resulting softness and apparent fluctuation may easily lead the most experienced into error. On the other hand, when ovarian tumours are still of moderate size, and at that stage, when several cysts of nearly equal size are, as it were, struggling for the pre-eminence, the prominences they present might mislead to the belief that they are uterine fibroids.

c. Difference in Sounds heard on Auscultation.—The stethoscope gives us one of the best marks of distinction that I know of between ovarian and fibroid tumours. On listening through the abdominal wall over a fibroid tumour large enough to reach above the pelvic brim, you can often hear a rushing sound precisely resembling the sound heard in the gravid uterus and known as the placental or uterine bruit. This sound occurs, as we shall see afterwards, in fibroid tumours growing within the muscular walls of the uterus, and not in the sub-peritoneal variety of the disease. But I never yet heard a sound resembling that bruit on auscultating over an ovarian tumour; and indeed I never heard any sound at all, except, it might be, the pulsating sounds of the large abdominal arteries. Drs. Churchill, Scanzoni, and others, have averred that they have heard a distinct bruit emitted by an ovarian tumour, but they had not an opportunity of verifying their diagnosis by a post-mortem examination; and we may still doubt whether the tumours from which the sound proceeded were really ovarian. Whenever you hear that sound, therefore, in the case of an abdominal tumour, and you know that the patient is not pregnant, you have strong reason to conclude that the tumour is a uterine fibroid, and not a cystic ovarian tumour.

d. Difference in relation to Connection with the Uterus.—Careful vaginal exploration will give you some further indications of much value in enabling you to distinguish between ovarian and fibroid tumours. If the uterus be within reach of the finger, or, still better, if you can introduce a sound into its interior, you will find that in the case of fibroid tumours the whole mass can be felt through the abdominal wall to be moved from one side to the other, according to the motion imparted to the uterus by the sound; while, if the tumour be ovarian, the uterus alone is moved, and the mass, as felt through the abdomen, remains fixed and motionless. Or, on the other hand, by keeping the finger in contact with the os uteri, and making movement of the mass from without, you can decide as to their connection from the consentaneous movements then felt; or, if the uterus remain unaffected by the movement of the abdominal mass, then you know that they are independent of each other, and that the tumour is probably attached to the ovary.

e. Difference in relation to Position of the Uterus.—Formerly, I used to think that we had another sign distinctive of the existence of an ovarian tumour, when the mass was felt lying behind the uterus; not that fibroid tumours might not occupy the same position; but they are usually more diffused through the walls of the uterus, and lie as often in front as behind; and I imagined that ovarian tumours would not be found to take up a position in front of the uterus. But I have seen several cases in which an ovarian tumour had become pediculated, and, having passed round the uterus, tilted the organ backwards and retained a position in front of it, between the uterus and the bladder.

f. Difference in Size of the Uterus.—Perhaps one of the most certain and the most reliable signs of fibroid tumours of the uterus, as distinguished from ovarian growths, is elongation of the cavity of the uterus, which is very generally present in connection with intramural and submucous fibroid tumours. This elongation you can ascertain by passing the uterine sound. When examining a uterus which is the seat of an intramural or submucous fibroid tumour, you will find that the instrument can be pushed much farther into the cavity than in cases where the womb is unaltered, and you can thus determine that the organ is spun out and enlarged like the pregnant uterus, so that, instead of being only two and a half inches long, it admits the sound for a distance of three, or even sometimes as far as six or eight inches. Such a decided enlargement of the uterus I have never found among all the many cases of ovarian dropsy that I have had occasion to examine, and I regard it as of itself almost sufficient to show the tumour to be uterine and not ovarian in its seat. Cruveilhier, indeed, has found on dissection some instances in which the uterus was enlarged in patients who had died with ovarian dropsy, but such cases, though enough to put us on our guard, are certainly rare; and I repeat, that when you find the sound passing into the uterus four or five inches, you may almost be quite certain that the doubtful tumour grows from the uterus and not from the ovary.

4. *Ascites.*—A large and soft ovarian tumour, distinctly fluc-

tuating, and filling up a large space in the abdominal cavity, is not likely to be ever mistaken for the gravid uterus, or for a fibroid uterine tumour. But you will occasionally find yourselves for a few minutes in doubt as to whether, in such a case, you have to deal with an ovarian growth, or with a collection of ascitic fluid lying free in the abdominal cavity; and it sometimes becomes a matter of importance to know how you are to make a diagnosis between ovarian and abdominal dropsy. When you are thus doubtful of the true nature of the case, you will be guided to a correct diagnosis by various considerations, as, *Firstly*, By observing the form which the abdomen assumes when the patient is made to lie supine. Ovarian tumours, like the pregnant uterus, make the yielding anterior abdominal walls project forward in the centre, sometimes, however, in an almost angulated and irregular form; while the abdomen is usually flattened out when filled with ascitic fluid, and any bulging that exists is seen at the sides, from the tendency that the free and unencysted fluid has to gravitate to the lowest level. *Secondly*. If you make percussion over a large ovarian tumour, you will find that the sound is dull around the umbilicus, and over all that part of the abdomen where the tumour comes in contact with the internal surface of the anterior wall, while at the sides and above, the intestines which have been pushed aside and upwards by the tumour yield a tympanitic sound. If you percuss the abdomen when it is filled with an ascitic collection, on the other hand, you obtain a resonant sound in front around the umbilicus, while at the sides the sound from the line of the water-level downwards, is dull, because the fluid has sunk backwards, and allowed the intestines to float upwards towards the anterior surface. Or if the abdomen be so much distended with fluid as to prevent the bowels from reaching the abdominal wall, and the sound emitted on percussion around the umbilicus be dull, yet by pressing the wall backwards, and thus displacing some of the fluid, you can at last arrive at the bowels, and then you will obtain the resonant percussion tone. If you

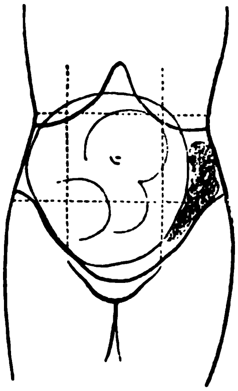


Fig. 67.

Fig. 67. Diagram illustrative of the relation of an ovarian tumour to the descending colon. Percussion in the umbilical and hypogastric regions would give a dull sound, while at the sides and above the tones would be resonant.

have still any doubt as to the nature of the case, you may, *Thirdly,* succeed in resolving it by causing the patient to move from side to side, when you will observe the free ascitic fluid shifting its position, and sinking down to the side on which the patient lies; and this change of position of the fluid you can easily detect by marking the line at which the dull and tympanitic sounds meet when the patient lies in any particular position, and finding it to vary when she turns to one or other side. On the other hand, in ovarian dropsy the relative line of dulness and resonance on percussion is not materially altered by these changes of position in the patient. In fact, you will remember easily these distinctive marks between peritoneal and ovarian dropsy, if you will merely hold in recollection: 1. That the dropsical effusion obeys in the abdomen the common laws of the gravitation of fluids to the most dependent parts; 2. That in cases of ovarian dropsy the fluid is enclosed within an isolated cyst or series of cysts, and does not move and gravitate through the general cavity of the abdomen; and, 3. That on the contrary, the effusion in ascites or peritoneal dropsy is contained within the general cavity of the abdomen, and moves from one part to another of that cavity, in correspondence with changes in the mere position of the patient; while the intestines—distended with air, and specifically lighter—float more or less on the surface of the fluid, as may readily be ascertained by percussion. There is only, let me add, one class of cases where these physical signs may prove insufficient to guide you to a correct diagnosis—those cases namely, where the peritonitic effusion is associated with a tubercular affection of the mesentery and peritoneum, or the omentum has become the seat of adhesions, which prevent the bowels from floating forward when the patient lies supine. A knowledge of the patient's previous history, and her general constitutional condition, will often serve to enable you, however, to decide between the two forms of disease; for on inquiry you will find that when the collection of fluid is ascitic in character, the patient is suffering, or has suffered at some previous period or periods, from renal, or more frequently still, from some form of cardiac or hepatic disease, which you may still be able to recognise even after the abdomen has become much distended, and that the distension has begun at the most dependent part of the cavity and spread gradually and equably upwards; while, in the case of ovarian dropsical collections, the anamnesis teaches that the disease first showed itself in the form of a circumscribed and rounded growth, seated originally in one or other iliac region, and at length attaining such a size as to fill up the whole cavity of the abdomen.

5. *Tympanitis of Spurious Pregnancy.*—You would hardly suppose it likely that a tympanitic distension of the bowels could be mistaken for a solid ovarian tumour. Yet such an error has not unfrequently been fallen into. I was once called to see a lady of high rank, living at a great distance from this city, who had been pronounced by her medical attendant to be the subject of an ovarian dropsy, and her family had been thrown into the greatest distress in consequence. The abdomen was very large; but on percussion, both anteriorly and laterally, it everywhere yielded not a dull but a tympanitic sound; and the supposed cystic tumour thus resolved itself into a gaseous accumulation in the intestines, which on further investigation proved to be associated with all the other symptoms that I described to you a short time ago as characteristic of pseudocyesis, or spurious pregnancy. That is an instance where a grave error in diagnosis was fallen into, but where, fortunately, no corresponding grave error in practice was committed. But such a mistake in diagnosis has led to most painful consequences when a surgeon has cut open the abdomen with the view of performing the operation of ovariotomy in a patient whose most grave disorder was the tympanitic distension of the intestines so frequently seen in cases of pseudocyesis. You may remember my telling you, when lecturing on that subject, that no less than six cases have been put on record where patients had been subjected to the dreadful operation I have just referred to, ere it was discovered that the tumour intended to be removed had no existence at all. If you bear in mind the possibility of the error, the difference of the tones elicited on percussion will always serve to guard you against the chance of making such a dangerous mistake.

6. *Hydatids.*—The variety of abdominal tumour which perhaps you will find the greatest difficulty of all in distinguishing from an ovarian growth, is one, fortunately, of but rare occurrence in practice. The tumour may be of large size, and it presents all the physical characters of a cystic ovarian tumour; but if you could have an opportunity of opening the abdomen, you would find that it was formed by a hydatigenous degeneration of the omentum. Hydatids of the omentum, then, and partial encysted ascitic collections, which are usually associated with hydatigenous degeneration of some portion of the peritoneum, form a class of tumours which no difference in physical signs, and, probably, no difference in functional

symptoms, will enable you to distinguish from cystic degeneration of the ovary. In the case of the omental growth, however, you may be enabled to form a correct diagnosis by being told by the patient that the tumour began to grow high up in the abdominal cavity above the umbilicus, where it was first felt, and whence in growing it has extended always downwards; instead of beginning low down in the pelvis, and growing upwards, as is seen in the case of ovarian tumours. Or, if no inflammatory adhesions have taken place, you can perhaps push the tumour upwards in the abdominal cavity to such an extent as to convince you that it can have no attachment below, and that it cannot spring from any pelvic organ. In the case of the encysted ascitic collection, you can sometimes, I believe, only determine the real nature of the case by tapping the cyst, and finding the hydatigenous bodies in the fluid that escapes.

7. *Fæcal Collections in the Intestines.*—Some of you may remember, that during the winter we had in the hospital a patient who was sent in from the country, and presented on admission the colour and appearance of a person labouring under some malignant disease. The facial expression might have led you to believe that she was the subject of a cancerous diathesis. She had a tumour in the left hypogastric region about the size of a fist. But under the use of croton oil it readily disappeared, and proved to be only a mass of fæces in the colon. You might suppose that it would be difficult to mistake such a tumour for any kind of morbid growth, and you might imagine that the patient would be suffering from such a degree of constipation as at once to indicate its real nature. But there is not of necessity any degree of constipation present. On the contrary, there is sometimes diarrhœa. Dr. Abercrombie told me he once attended, with some other physicians, a case where there were large swellings felt in the abdomen, and the patient suffered severely from diarrhœa. After death the swellings were found to be formed merely by hardened deposits of fæcal matter in the sacculi of the large intestine, the central tract through the bowel being left free; and that he was then in attendance upon a patient suffering from obstinate diarrhœa, who at the same time had large scybalous masses accumulated in the colon. And you can readily understand how large collections of hard fæcal matter lying long in any part of the large intestine, should at length give rise to such an amount of irritation there as to produce an attack of diarrhœa; and when this has become established, the original cause of it will readily be overlooked. The peculiar feeling of such a tumour will generally enable you to

decide as to its true character: it feels like no other tumour that I know of. On being examined either through the abdominal walls or through the rectum, it is felt to be hard and resistant, but if one finger be pressed steadily upon it for one or two minutes, it will at last indent like a hard snowball, and, as there is not the slightest elasticity about it, the indentation remains after the pressure is removed. If any doubt should still remain, the persevering use of aperients will clear up for you the diagnosis by causing the mass to be dissolved and carried off.

LECTURE XXVII.

ON OVARIAN DROPSY—THE DIFFERENTIAL DIAGNOSIS, *Continued*—THE MEDICAL TREATMENT.

GENTLEMEN—I have hitherto omitted to point out to you—though, perhaps, it is a matter of no great practical moment—how you can generally discover whether an ovarian tumour of such large size as to fill up and distend the abdominal cavity took its origin from the right or from the left ovary. The history given by the patient, as to the side in which the swelling first appeared, is sometimes fallacious; but you can almost always satisfy yourselves on this point by attending in the first place, to the relative situation of the intestines at the two sides of the abdomen, as ascertained by percussion. I have already stated that the tumour usually lies immediately in contact with the anterior abdominal wall, and in front of the small intestines, and that in the progress of its development it pushes aside the intestinal canal laterally and upwards, as the pregnant uterus does. But this statement expresses but imperfectly the relation of the tumour to the intestines; for you will find that while that mass of bowel which lies on the side opposite to that from which the tumour springs is thus, more or less, pushed aside, the mass of bowel which lies on the same side is displaced laterally to a still greater degree, and, indeed, is often overlapped, as it were, by the ovarian swelling [see Fig. 67, p. 424]. Hence, when the tumour grows from the right ovary, for example, it hides the caput cæcum coli, and only pushes aside the descending colon, so that in such a case you obtain the resonant percussion-sound at a higher level, and nearer the anterior surface on the left side of the abdomen, than you do on the right side. But sometimes, as you can see from the accompanying sketches of a case copied from a drawing of Dr. Bright's, in *Guy's Hospital Reports*, when the tumour is of unusually large dimensions, the whole of the intestines, large and small, may come at last to lie behind the tumour at both sides, so that percussion has to be exercised very low downwards on either flank before the position of the bowels can be discovered. Even in such a case, however, you will usually be able to arrive at a knowledge of the ovary from which the tumour springs by ascertaining, in the second place, the position of the uterus and the direction in which it is displaced. For when an ovary becomes morbidly enlarged, it almost always pushes the uterus in the progress of its growth to the opposite side; so that when the tumour arises in the right side, the uterus is found to be pushed or dragged upwards towards the left side; and when a sound is introduced into the internal cavity, instead of passing up directly behind the pubes, it is felt to pass obliquely upwards towards the brim of the pelvis of the left side. Conversely, when you find that in introducing a sound into the uterus in a case of ovarian dropsy, the instrument passes obliquely upwards to the right side, you may be pretty certain that the tumour has originated in the left ovary. But, passing from this matter, let me remind you that at our last meeting we were occupied with the consideration of some of the diseases with which cystic ovarian tumours had been, or were liable to be, confounded, and the manner in which a differential diagnosis was to be established between them. I believe I have already touched upon the special tumours and forms of

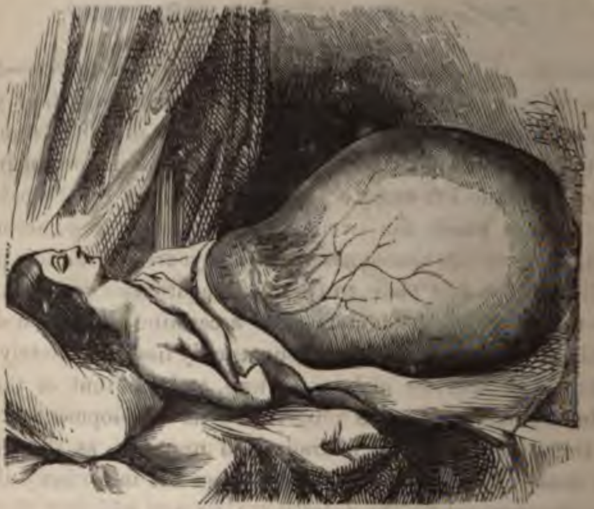


Fig. 68.

Fig. 68. Drawing of a large ovarian tumour showing the position of such tumours immediately behind the abdominal wall, and in contact with the omentum.—(*Bright.*)

disease that are most frequently mistaken for ovarian growths, and in regard to which practical errors have been most frequently committed. There still, however, remain one or two others I should like briefly to turn your attention to. One of these I neglected to advert to, when previously discussing the differential diagnosis of pregnancy and morbid tumours, and states of the uterus from ovarian dropsy. I allude to

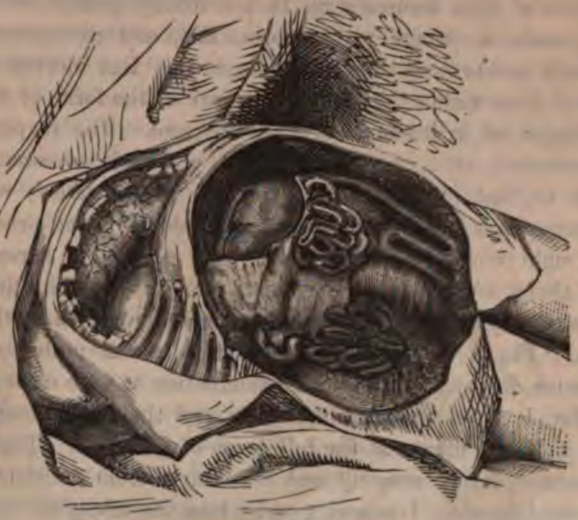


Fig. 69.

8. *Dropsy of the Cavity of the Uterus, and of the Amnion.*—Sometimes, though rarely, an accumulation of fluid takes place within the cavity of the unimpregnated uterus; the canal of the os or cervix uteri being of necessity for the time occluded. I attended an unmarried lady, with the late Dr. Taylor, in whom I repeatedly drew off, with a small catheter—passed with some force and difficulty—large accumulations of serous fluid from the cavity of the uterus. The fluid was secreted by a cauliflower or cancroid tumour seated at the fundus uteri, and occasionally the uterus was distended by its accumulation to the size of a uterus in the fifth or sixth month of pregnancy. The womb sometimes becomes enlarged and distended by fluid derived from another source. Some of you had an opportunity of seeing, during last winter session, a case where the vagina had become occluded so that the catamenial fluid

---

Fig. 69 shows the compression and displacement of the abdominal and thoracic viscera produced by the tumour.—(*Bright.*)

was prevented from escaping, and as it lodged and accumulated within the cavity of the uterus, that organ became at last of large size, and had a fluctuating feeling which made it very closely to resemble a cystic ovarian tumour. These two cases afford you examples of fluid accumulating in the unimpregnated uterus, producing such a change in its form, size, and consistence as is extremely apt to lead to error in diagnosis. But morbid accumulation of fluid within the pregnant uterus in the form of dropsy of the amnion, or hydramnios, is more frequent. The shape, feeling of fluctuation, etc., of the distended uterus is sometimes very similar to that of an ovarian dropsy. I saw lately, with Dr. Dunsmure, a lady who had been delivered of a full-sized, living child, eight months previously, and who considered herself to be again about four months pregnant. The tumour in the abdomen was very fluctuating, and as large as the uterus at the ninth month. For a moment I thought that it was probably a case of ovarian dropsy, but a vaginal examination at once dispelled that idea, for I found the os uteri open, and the cervix bulging out above it like a uterus at the full term of gestation. The patient had been suffering severely and alarmingly from constant vomiting, neuralgia, etc. I passed a stylet into the cavity of the uterus. Above four hundred ounces of fluid ran off, and two small twins were found in utero. The vaginal examination of the uterus, and if necessary, the introduction of the uterine sound, will always, in this way, enable you to distinguish dropsy of the uterus from dropsy of the ovary. But enlargements of more distant abdominal organs are sometimes confounded with ovarian tumours and dropsies. Thus, occasionally, we find, for example, an

9. *Enlarged and Dependent Liver mistaken for Ovarian Dropsy.*— This error is certainly not a frequent one in diagnosis. But I have seen more than one instance of it, where the hypertrophied liver stretched downwards, as it sometimes does, into nearly the right iliac region. Such hepatic enlargement may be produced, as you know, by various morbid states of that organ,—as by simple hypertrophy, by some forms of chronic inflammation, by collections of hydatids, and by deposits of carcinoma, etc., among the hepatic structures. This year I saw, in consultation in England, a patient whom two excellent medical practitioners believed to be the subject of ovarian disease, with one cyst projecting forwards, and very fluctuating under the thin and attenuated abdominal parietes. But a new and careful examination satisfied us all that the great mass

of the tumour was formed by an enormously enlarged liver, and that the projecting fluctuating part was only a greatly distended gall-bladder. In this, as in other similar cases, when the patient is laid supine, you can move upwards the hepatic mass, without producing in any degree any corresponding movement upon, or dragging upwards of the uterine organs. There is a line of resonance from the presence of the intestinal canal, between the tumour and the brim of the pelvis, while the range of dulness on percussion extends upwards from this line to the sixth or seventh rib on the right side. If the patient has been seen by the practitioner from the first, he will have traced also the tumour extending from the edges of the ribs downwards, instead of, as in ovarian disease, from the iliac region upwards.

10. *Hypertrophied Spleen.*—You sometimes meet with another variety of tumour, lying in the left side of the abdominal cavity, which has also, in some rare instances, been confounded with ovarian growths. I refer to extreme enlargements or hypertrophies of the spleen. Such a splenic hypertrophy appears as a tumour somewhat elongated in form from above downwards, smooth, resistant, and inelastic to the touch, on the whole with a regular and unbroken surface, but usually with one or more indentations on the anterior margin. It passes upwards beneath the ribs, and by percussion can be ascertained to reach to the very summit of the abdominal cavity, and even to push the diaphragm unusually high up. It reaches sometimes considerably beyond the middle line of the abdomen in front, and its inferior margin can in most cases be distinctly traced by palpation above the level of the crest of the ilium. But sometimes a splenic tumour extends further downwards into the iliac fossa and the pelvic cavity, so that its lower border cannot be easily defined, and these are the cases where a splenic enlargement becomes liable to be mistaken for ovarian dropsy. Cases are on record where such a mistake has been made; but if you will only bear in mind the physical characters which I have spoken of as distinctive of this form of tumour, I think you may save yourselves from such an error. If you are still in doubt, the history of the case will probably solve it. For you will find on inquiry that, as in excessive hypertrophies of the liver, the tumour, if it be a splenic one, grew from above, and is chiefly moveable in an upward direction; whilst, on the contrary, an ovarian tumour is noticed first in the lower part of the abdominal cavity, and is incapable of being moved upwards to any considerable extent. On examining the blood, moreover, in a case where the

spleen is thus enlarged, the number of the white or colourless corpuscles, as you are all well aware, is sure to be found greatly multiplied; and such an increase in the number of these globules is not likely ever to be met with in any case of ovarian dropsy, except as an accidental and temporary phenomenon. Again, I have known an ovarian tumour to be mistaken for a morbid condition of the kidney, and the reverse; and more particularly has this error been committed with regard to the

11. *Loose or Mobile Kidney.*—This condition is by no means unfrequent, and is often mistaken for more alarming diseased states, and particularly for various organic affections of the abdomen. I have known it confounded with tumour of the ovary; but I have known it far more often mistaken for hepatic disease, and the unfortunate patients, in consequence, leeched, blistered, mercurialised, etc., and all most unnecessarily. The kidney is normally bound down in its site by the peritoneum covering it on its anterior surface. But when it enlarges from any cause—and the kidney is liable to various types of transitory hypertrophy and increase of size—it stretches and pushes its peritoneal coat before it, till at last the peritoneum envelopes it, first laterally, and then it may be even posteriorly, until at last the organ becomes pediculated, as it were, like a polypus—or, more truly speaking, until the kidney makes for itself a more or less perfect mesonephron formed of a double reflection of peritoneum, on the same principle as the mesentery or mesocolon. I have seen this condition of parts on dissection. When the kidney becomes in this way loosened from its normal site, it sometimes falls so low down as to be mistaken for an enlarged ovary. This loose or mobile kidney is very often detected accidentally, having produced no special symptoms whatever. Occasionally, it seems to cause disturbances from time to time in the functions of the liver, stomach, and neighbouring viscera; and sometimes the floating kidney itself becomes swollen and painful from time to time. The loose and dislocated organ generally gives a sensation of sickness and pain, when compressed between the two hands of the examining physician. You can usually readily feel it like a floating, or mobile tumour, if you lay the patient supine, and place her half-way between the positions on the side and back, with one hand placed on the renal region behind and the other in front. You feel a mass of the size of the normal kidney, which you can sometimes displace, to a limited degree, in various directions. Usually, however, it most readily pushes upwards under the false

ribs, and sometimes it will slip up in this direction from your two hands—like an orange eluding your attempt to seize it. This form of loose kidney is much more frequent on the right than on the left side, though I have seen it in some patients simultaneously on both sides. It is a condition of matters which time and improved health, and especially the improved stoutness and fatness of the patient, certainly sometimes rectifies—as I have repeatedly witnessed. But here I have only to speak of it as liable to be confounded with ovarian disease. The size and form of the mobile kidney will enable you to draw the distinction between them ; and if you have still doubts, the tracing the supposed tumour to its normal attachment and site in the renal region, and the freedom of all organic attachments between it and the ovarian region will dispel any difficulties.

12. *Distended Bladder.*—Finally, gentlemen, let me mention one other form of swelling which has been in a few instances, and usually only for a brief time, mistaken for ovarian dropsy. I allude to the kind which is formed by the urinary bladder when it becomes greatly over-distended. Called to such a case, and finding what you may at first suppose to be a cystic tumour, reaching as high as the umbilicus, and passing down to the pelvis, you might, for a moment, be led to imagine that it was of ovarian origin. And you will be all the more likely to be led into error if the retention has gone to such an extent as to have led at last to a form of incontinence, for the constant dribbling away of the urine may make you overlook the antecedent accumulation. In fact, you will find occasionally that patients pass urine from time to time without ever fully emptying the bladder, which thus continues to resemble a dropsical abdominal swelling. In a case of this kind, in which Berger was consulted as to the proper mineral waters which the patient should use, he introduced a catheter, and instantaneously cured the patient. But should you ever commit such a mistake in diagnosis as to confound a distended bladder for an ovarian dropsy, and follow it up by the misdeed in practice of acceding to the patient's urgent demand for relief by tapping such a cyst, you can easily understand how fatal the double error might prove to be. But I do not anticipate that such an unfortunate error will ever be made by any of you ; and certainly you can always avoid the danger of it, by carefully inquiring into the patient's history ; and, where any doubt remains, or even any shade or suspicion of a doubt, by introducing a catheter into the bladder and finding if fluid may be there

accumulated. In such a case the employment of the catheter is at once a means of diagnosis and a means of cure. Besides, in the differential examination of any doubtful and difficult examples of pelvic and abdominal tumours, it is a measure of physical diagnosis that we should never omit. The bladder is often displaced laterally by such tumours; it is often so displaced by large ovarian tumours; and you can only ascertain the degree and extent of its displacement by the use of the catheter or sound.

But I must bring these remarks on the Differential Diagnosis of Ovarian Dropsies to a conclusion, as I fear that I have already dwelt on this part of the subject too long; without, however, having exhausted it. There are other forms and varieties of abdominal and pelvic disease, which are sometimes, though more rarely, mistaken for cystic ovarian tumours, and the reverse; such as malignant and cystic tumours originating in the omentum, in the walls of the intestine, in the walls even of the stomach, in the pancreas, and in the mesentery, in the subperitoneal cellular tissue, etc. But it would unreasonably exhaust your time and mine, if I were to dwell longer on these topics. In every doubtful case, before finally deciding that it is an ovarian cystic tumour, strive to make out that you have positively present the essential signs of that disease, and that negatively the signs are absent which belong to any analogous kind of abdominal or pelvic tumour. If you have still doubts on the subject,—and there are puzzling and perplexing cases which will leave you in doubt, despite the most careful and repeated examinations,—then, at all events, do not have recourse to anything active or dangerous in the way of treatment, as long as such doubt remains, lest you damage instead of benefiting your patient.

In describing to you, in my preceding lecture, the individual symptoms of ovarian dropsy, I made, I fear, various omissions, some of which I may take an opportunity of supplying when subsequently discussing various points in the surgical treatment of the disease. In the meantime, let me pass on to the most important matter of all connected with our subject—namely:

The Treatment of Ovarian Dropsy.

The treatment of this disease may be divided into the Medical or Surgical. Under these two divisions, therefore, I should wish to speak at present of the means which may be employed for the alleviation or the cure of ovarian dropsy, and first of all as to the

A.—MEDICAL TREATMENT.

If you will take the trouble to look into the records of this disease, you will find that observations have been published from time to time, by different authorities, as to the supposed good effects of various remedies in ovarian dropsies, and that cases are duly related in which it is averred that such remedies had been successful in causing a cure, or, at least, an alleviation of the malady. For my own part, let me state at once, I have no belief that any drugs or medicines ever removed a cystic multilocular growth or dropsy of the ovary. I would almost as soon expect to remove by them a foot, or a hand, or any integral part of the normal body. In any exceptional cases, where internal medicines have appeared to diminish ovarian tumours, you may rest assured that a primary error in diagnosis has been committed, and that the supposed ovarian growth was a meteorismic tumour of the abdomen, or ascites, or a specimen of some of those other maladies of a curable type that are often enough mistaken for ovarian disease. But in medical works you may read, and read profusely too, of medicines—now of one kind, and anon of another—which have been much bepraised because of their imagined action in causing the absorption, sometimes of the solid walls, sometimes of the fluid contents of ovarian cysts, thus bringing about, in one or in both of these ways, a reduction in the size of the tumour. The principal remedies which have been supposed to be invested with this power, belong to the class of alteratives or deobstruents. Among those most frequently used with the object of reducing the size of ovarian tumours, preparations of mercury, of iodine, of bromine, of potass, and of lime, may, perhaps, be regarded as the chief. You will, however, find other classes of remedies also spoken of as possessed of power over ovarian growths. In works published before the beginning of this century, it is not unfrequently argued and averred that the medicines which are found effectual in dispelling other forms of dropsy, are also capable of curing dropsy of the ovary. The word "dropsy" misled them; and the fluid formed in the sac of a new and morbid growth having received the same designation as an effusion in an ordinary serous cavity, it was imagined that the remedies that were curative in the latter should also be of service in the former. Hence arose the occasional use of diuretics, diaphoretics, and hydragogue cathartics, in ovarian cystic disease. But I believe all trustworthy observers have now come to the conclusion that these classes of remedies, which are often so useful in the removal of the ordinary forms of dropsical effusion are of no use in the removal of the so-called dropsy of the ovary; though they may diminish the ascitic collection by which they are sometimes surrounded. And as for the special deobstruent and alterative remedies of which I have spoken, I believe I may, with perfect justice, say that they are at least as ineffectual. I use this remark as equally applicable to these drugs, whether they are exhibited internally as medicines, or applied externally in the various forms of ointments, plasters, fomentations, etc. Nay, the use of these so-called deobstruents is not only ineffectual; it is sometimes more—it is hurtful and injurious. I have seen mercury pushed both far and long, in patients suffering from ovarian dropsy. But I never saw any diminution in the size of the tumour result from it, nor was the patient's condition ever improved in any degree. On the contrary, poisoning with mercury has generally a detrimental and injurious effect on the patient's constitution — reducing her strength, and rather favouring the growth of the morbid mass than otherwise. For an ovarian cystic tumour is of the nature of a parasite, which grows the more rapidly in proportion as the system of the patient gets weaker, and thus the onward progress of the disease, instead of being checked by the use of mercury, is actually, though indirectly, promoted by it. Much evil, then, may result from the use of this drug; and doubtlessly much evil has followed its employment; while I believe it has never been of any real service in checking the growth of a cystic ovarian tumour. In all cases, therefore, of that disease, I would most emphatically advise you to eschew it altogether. Liquor potassæ was at one time frequently prescribed; and muriate of lime was often used by my predecessor, Dr. Hamilton, in cases of ovarian dropsy, with the view of leading to the absorption of the fluid. But when I tell you that their use for this purpose has been entirely, or almost entirely, given up by medical men of the present day, you may understand how little they were found effectual for the desired object. Nor, I regret to say, have I anything more favourable to state with regard to the effects of iodine and bromine as remedies for the removal of ovarian growths. I have known iodine, or hydriodate of potass, tried long and perseveringly, with no other effect than sometimes the unfortunate one of damaging and depressing the patient's constitution; and, from what I told you a minute ago, when speaking of the use of mercury, of the evil consequences of any deterioration of the patient's general health, you will see at once that it is not a remedy to employ actively in ovarian dropsy. Bromine, or bromide of potassium, on the contrary, usually acts as a good tonic, and may be administered without any risk of injuring the patient. If it does no good, at least it will do no harm. When I come to speak of the treatment of fibroid tumours of the uterus, I shall try to show you that bromine exerts sometimes a decided influence in producing absorption or involution of that form of tumour; but I cannot say that I have seen any such good effects result from its use in the case of ovarian tumours, although I have frequently administered it for a lengthened period. On the whole, then, I would beg to advise you to be very chary of the administration of drugs, and especially of strong and heroic drugs, in cases of multilocular ovarian dropsy. One of the great, and, let me add, difficult lessons, which you will have to learn when you come to practise, is to know when to stay and withhold your hand, and to keep yourself from injuring your patient by over-confidence in medicine, and by the too great use of physic. In the case of ovarian disease, patients will often urgently demand of you some remedy to dissolve their tumour; and if you, in compliance with their request, or believing any drug to be possessed of such a solvent power, begin to administer a quantity of drugs, you may often do harm instead of good. A tumour, which might have remained of moderate size, and proved a source of but remote danger to a patient, may be stirred up into active development and growth, and speedily come to be a source of danger and distress in consequence of an injudicious attempt to promote its absorption by the use of remedies calculated to act injuriously on the patient's general health. I would, therefore, advise you always to be well assured of the necessity of interference before you proceed to subject a patient with ovarian dropsy to any special kind of medical treatment. In the way of this treatment, perhaps the only indications which you will be called on to fulfil are the following—

1. *Keep up the Standard of Health.*—To maintain the general health and strength of the patient at the highest possible standard, you may require to regulate her diet and general hygiène, and may deem it proper to give tonics and other kinds of remedies. But in administering drugs of any kind, you must always bear in mind that you do so only with a view to the patient's general condition, and with the certainty that in keeping up her strength you do all that can usually be effected to retard or prevent the growth of the tumour and to protect her from the dangers of its enlargement.

2. *Alleviate Symptoms due to the Pressure and Presence of the Tumour.*—The tumour, especially in its earlier stages, sometimes presses on the rectum, and the bowels are apt to get constipated: or it presses on the bladder and causes dysuria, or retention of urine. Hence you will require occasionally to administer aperients, or to order an enema, and to prescribe some sedative mixture, or soothing application; or introduce the catheter. When the limbs begin to swell and become œdematous from the pressure of the tumour on the abdominal vessels, you will be called on to give diuretics to promote the resorption and elimination of the anasarcous fluid. Vomiting, and all other mechanical and functional symptoms, must in like manner, be, as far as possible, counteracted and subdued, by means of the appropriate remedies. Occasionally when an ovarian tumour has ascended into the cavity of the abdomen, and its pedicle has become much elongated, so as to permit to the tumour a considerable freedom of motion, it causes distress and discomfort to the patient, by constantly rolling about from side to side in the abdomen, and producing compression, now of one organ, and again of another, according to the position assumed by the patient. To relieve this disagreeable symptom, all that you may require is to endeavour to fix the tumour; and this you can in most cases accomplish by making the patient wear a plain elastic abdominal belt, such as is furnished by most surgical instrument and bandage makers; or the patient may make a simple binder for herself that will suffice to keep the tumour fixed in one position. I have already told you that when an ovarian tumour has attained a certain size, it almost always passes gradually, and of its own accord, upwards out of the small hard-walled cavity of the pelvis into the roomy and distensible abdominal cavity. But it happens occasionally, though certainly very rarely, that the tumour gets impacted in the cavity of the pelvis after it has attained such a size as to fill up all the available space in it; and as it goes on growing in this position, you can readily understand what an amount of suffering it will, in such a case, occasionally cause to the patient from the pressure it exerts on the surrounding soft parts. The distress experienced in such a case is much greater than that produced by the pressure of the normal gravid uterus; for, in truth, it exactly imitates the effects of a pregnant uterus, retroverted, and impacted below the brim and within the cavity of the pelvis. It is relieved also in the same way; for by exerting with your fingers adequate and steady pressure on the tumour, through the back wall and roof of the vagina

you can usually push the ovarian mass upwards into the abdominal cavity, into which it should have already mounted; and then the relief which the patient feels, is so instantaneous and complete, that she will be ready to believe that you have wrought a miracle upon her, and that she has been suddenly cured. You know, however, that such is not the case, that she has only obtained relief from her immediately urgent symptoms, and that betimes the tumour will again make her aware of its existence, and lead to the production of a series of other symptoms, which it will be infinitely more difficult to subdue or control.

3. *Subdue Local Inflammation when it occurs.*—Perhaps the only other indication that remains to be fulfilled in the way of medical treatment, is to put in use all the various antiphlogistic measures with which you are acquainted, for subduing inflammation when it arises in the wall of the cyst; and for counteracting the effects of such inflammation, when it has gone on to some of its higher grades. It is rarely that you find inflammation taking place in the interior of an ovarian cyst, until some operation has been undertaken for the cure of the disease. Yet, even in cysts which are tapped for the first time, we sometimes find the fluid that escapes turbid, from the admixture of matters evidently of inflammatory origin; and if the patient's history be inquired into, we can usually make out that, at one period or another, from the time when she first noticed the tumour, she had had occasional shiverings and pain in the abdomen, and that sometimes also she had suffered from profuse perspirations. Most frequently, all symptoms of inflammation occurring in the interior of an unruptured and unopened cyst pass unnoticed; and when patients come to you with cystic ovarian tumours, complaining of pain and other symptoms of inflammation in the tumour, you will usually be justified in concluding that the morbid process is taking place, not in the interior of any cyst, but on the external peritoneal surface of the growth. So long as such tumours are of moderate size, they usually roll about freely in the abdominal cavity, and show no great tendency to become the seat of any inflammatory process. In some patients, however, even when the tumour is still comparatively small, there seems to be a tendency to the occurrence of inflammation on its peritoneal surface; and if this morbid action goes on unchecked, the serous covering of the tumour becomes, in circumscribed patches, the seat of adhesions between the outer surface of the cyst and the abdominal wall or viscera. Whenever, therefore, you find decided symptoms of inflammation occurring in an

ovarian tumour, it becomes a duty of the greatest importance at once to endeavour to check the process, and prevent it, if possible, from going so far as to lead to the production of adhesions without, or pus within, the tumour.

This, then, is all, or nearly all, that can be effected in the way of medical treatment in any case of ovarian disease. A cure of the disease from absorption of the tumour, induced by any kind of remedial agency, is an event which you can never, I believe, trust to. You employ internal remedies only to keep up the patient's strength, or to palliate special symptoms. To bring about either a palliative or radical cure of the disease, you must have recourse, sooner or later, to some form of surgical treatment. But I must postpone till another occasion the discussion of that important subject, and then inquire with you what prospects surgery offers on this point. I regret, only, that these prospects are not of a brighter and happier tint than I shall have occasion to picture them to you.

LECTURE XXVIII.

ON OVARIAN DROPSY—ITS SURGICAL TREATMENT.

GENTLEMEN — Great diversities of opinion have prevailed with respect to the proper principles on which the surgical treatment of cystic or dropsical tumours of the ovary ought to be conducted; many methods of surgical treatment have been proposed; and some authorities have doubted the propriety of all surgical interference whatever. It would be almost an endless, and, withal, a very profitless task, were I to dwell upon all the details of the different modes of surgical practice that have been resorted to in the treatment of ovarian dropsies. You will be better able to undertake the management of a case when it comes under your own observation, if I now endeavour to point out and illustrate the general principles which must be followed in the treatment of the malady. But let me premise a hope that in the course of a few years—especially as the attention of the profession is now strongly directed to the subject—we may yet see all the means of the surgical treatment still more systematised and reduced to order than they have ever yet been, for then only shall we be able duly to appreciate each, and to know in what case to adopt or in what to reject it.

Of all the surgical means, then, by which it has been attempted to reduce and keep reduced, an ovarian tumour, perhaps the simplest is

I. THE APPLICATION OF PRESSURE.

Mr. Benjamin Bell, and Dr. Hamilton, of this city, tried, long ago, to dispel ovarian tumours by means of pressure; and in later years this plan of treatment has been revived by Mr. Baker Brown, who has carried it out much more perseveringly and systematically, and, it is reported, with better success. On what principle, some of you may ask, could we ever hope to arrest the growth, or bring about the resorption of cystic ovarian tumours by the application of pressure? I have already tried to show you that such tumours tend to develop themselves chiefly in the direction in which they meet with least resistance to their increase and growth, and it was supposed that by presenting an adequate obstacle to the growth of the tumour towards the abdominal cavity, as persistent and effectual as that which it naturally meets with in the hard-walled cavity of the pelvis, the further progress of the growth might be stayed, and, perhaps, even a certain degree of diminution produced in the size of the tumour. The same principle of treatment has been applied to other forms of morbid growths also, by Recamier, Arnott, Young, and others. It has been attempted in this way, for example, to check the growth of cancerous tumours, and to bring about their destruction, by subjecting them to such a degree of pressure as would hinder the further development of the individual component cells of the compressed mass, or lead to their speedy dissolution and decay. This kind of treatment was carried out long and perseveringly, and in many different ways; but all hope of curing cancer in this way has now, I believe, been given up; and, I believe, that for the cure of ovarian tumours too, such treatment is almost equally hopeless. Compression of ovarian tumours was effected by means of books, metallic presses, or folds of lint and linen cloth, laced and tied over the abdomen by all kinds of bandages. The application of the compressing agent was sometimes preceded by a preliminary tapping, with the view of preventing a re-accumulation of the fluid in the interior of an evacuated cyst, and with some hope also of producing the cohesion of its collapsed walls. I have known cases where this treatment has been tried, and have been told by the patients subjected to it that the amount of pain and distress produced by it was almost intolerable. If you inquire with what degree of success this plan of treatment has been attended, I think you will find it but very slight; and I believe the very few and isolated cases of cure that have been reported as probably or possibly resulting from it will hardly induce you to submit any of your patients to such an irksome and painful process.

II. Paracentesis.

The oldest practice, and that which is still most frequently had recourse to in the treatment of cystic tumours of the ovary, is the removal of the fluid from the largest and most prominent cyst or cysts by tapping them with a trocar and canula, or even by means of a simple knife or lancet. Various questions at once present themselves in connection with this mode of treatment. Let us see, first of all, under what circumstances we ought to puncture an ovarian cyst—or, in other words, let us study

1. *The Cases requiring the Operation.*—In Britain the operation of paracentesis abdominis is, as a rule, almost never had recourse to, till the ovarian tumour has attained such a size that it compresses injuriously the abdominal organs, and interferes with their function, or even impedes the action of the diaphragm, and renders respiration difficult, so that the patient is subjected to much discomfort and suffering, her health perhaps already damaged and impaired, and, it may be, even her life itself endangered by the distension to which she is subjected. Some writers have attempted to determine and define in what particular cases and conditions the operation should be performed; but, whatever rules you may find laid down regarding it, I repeat, that when you come to practise you will usually find that the degree of distress which the patient is suffering, or the degree of danger to which her health or life is exposed, are the indications that guide and impel you to the performance of the operations. Having decided as to the necessity of the operation in any particular case, you have next to determine where the tapping should be made; or

2. *The Place of Puncture.*—The puncturing instrument is usually introduced in the linea alba a few inches below the umbilicus, at about the upper third of the distance between the umbilicus and the symphysis pubis, because in most cases the cyst is in this locality sufficiently prominent to be easily pierced, and there are no vessels of any consequence in the abdominal wall which are likely to be a source of hemorrhage, if they should happen to be injured by the trocar or lancet. I don't very well know for what reason, some surgeons have proposed to evacuate ovarian cysts by puncturing them through the bladder. I can easily see that there might be a good deal of danger attendant on such a proceeding, but what advantage it could have over other and safer forms of the operation I do not understand. I have sometimes tapped ovarian dropsies at other points of the abdominal walls, as in the middle line above the umbilicus, or in one of the lineæ semicirculares below it; and we are obliged to select these or other spots in those exceptional cases where the cystic mass is too dense at the usual site for abdominal paracentesis, or where the trocar and canula have failed to draw off any sufficient amount of fluid when introduced in the usual position of the linea alba. If the subcutaneous veins are much increased in

size,—as they often are vicariously in ovarian dropsies which are large enough to compress the vena cava inferior,—be very careful to choose for the insertion of your trocar a spot which presents no enlarged veins beneath the skin. But in tapping ovarian dropsies the abdominal parietes have not always been selected as the seat of puncture. Sometimes they have been tapped through the vagina and the bladder; and I have read of the proposition of tapping also ovarian cysts through the rectum. The primary objection to performing the operation, as a common rule, through any such dependent localities is simply this,—the denser portion of multilocular ovarian tumours is, as I have already explained to you, almost always placed inferiorly in the cavity or at the brim of the pelvis, and we cannot usually easily or at all reach the larger cyst or cysts of the tumour by entering the canula from below. In some exceptional cases, however, we can readily enough empty the tumour in this way; and if we can there is no valid objection to performing paracentesis, as Nonat, Naumann, Watson, Arnott, Ogden, and others have done, by puncturing the dropsical collection through the roof of the vagina.

3. *Results of the Operation.*—If you ask What results are to be expected from this operation, and with what hope of cure may it be undertaken? I must at once tell you that the hopes of an ultimate and complete cure by means of it are very faint and slight indeed; and that it is usually had recourse to only as a means of temporary palliation. It has happened comparatively but very rarely that the simple tapping of a cystic ovarian tumour has been followed by a final cure of the disease. In ninety-nine cases out of a hundred, where the patient survives the first tapping, the operation requires to be repeated again and again; and every time it is had recourse to, the interval, as a general law, becomes shorter and shorter between every two successive tappings. Sometimes women have survived for many years a series of tappings, and enormous quantities of fluid have, in such cases, been drawn off from the cysts, as the following table shows:—

TABLE OF OVARIAN TAPPINGS, ETC.

Cases.	Number of Tappings, etc.	Quantity of Contents.
Lady Paget (Dr. Mead) . .	67 in 5 years.	240 gallons.
Mr. Ford's case	49.	350 "
Ramsbotham's	129 in 8 years.	461 "
Morand	in 10 months.	427 "
Martineau, of Norwich . .	80 in 25 years.	729 "

The table shows you, I repeat, the frequency with which the operation of tapping has been repeated in a few of the more rare and remarkable cases that have been put on record, and the large quantity of fluid that has been abstracted in each case in the course of these oft-repeated evacuations. Sometimes you may possibly meet with a case where the patient does not succumb until after the lapse of many years, and after the operation has been very frequently repeated. But that is certainly not at all the history of the ordinary run of instances of ovarian dropsy, for the patient usually dies after the operation has been only a few times performed. Let us ask, then,

Is Tapping a Dangerous Operation?

I believe it is by no means free from danger, more especially when performed for the first time. I have just told you that in some instances the operation has been repeated a great many times upon the same woman with the most perfect impunity, and the observation of cases of this kind where patients have been thus frequently tapped, may have led to the conviction impressed on many professional minds that the operation is as safe as it is simple and easy of performance. But that the operation is not so simple and harmless as it appears, some of you have had an opportunity of seeing in the case of a patient who died in the hospital in the early part of the year. I doubt not some of you will be able to recall to memory the patient I refer to. She was suffering from a large encysted tumour of the ovary, the great bulk of the disease being produced by the excessive development of a single cyst, which I tapped with the ordinary trocar and canula. The operation must have appeared to you a very simple one; there was no kind of complication or peculiarity about it; and certainly we were but little apprehensive of danger at the time. But in a day or two, inflammation sprang up in the interior of the evacuated cyst, and the patient died of a form of surgical fever. About the time when that fatal case occurred in the hospital, I saw, along with Dr. Coldstream, another instance of the disease in the person of a young unmarried lady, who had, when in England, consulted Dr. Clay as to the propriety of ovariotomy. Before, however, finally determining on that point, or on the injection of iodine, or other special measure, we agreed to make one preliminary tapping, to see what might be the nature of the contained fluid; whether there were any adhesions, and what, in short, were the exact characters, relations, and conditions of the tumour, as far as they could be ascertained, after the evacuation of the principal cyst. A quantity of pale bland-looking fluid escaped, and there was nothing noticed at the time in connection with the case to make us apprehensive of the result. But, as in the other case, the lining membrane of the cyst inflamed, and the patient died. Two cases of this kind, occurring so nearly at the same time, serve to remind us very forcibly of what we so readily forget in the midst of the ordinary run of successful—or, at least, innocuous—cases of the operation, viz., that simple tapping of a cystic ovarian tumour may sometimes be fatal. In these two instances, the patients were both operated on for the first time; and I mention this circumstance in order to impress it more emphatically upon you, that the operation is chiefly dangerous when the cyst is for the first time evacuated. When once a patient has been subjected to the operation successfully, or, at least, without undergoing any special hazard, she is comparatively safe, and the operation may be repeated as often as the urgency of her symptoms requires it without the same degree of fear of a fatal issue. When a tapping is performed for the second, third, or fourth time, it seldom by itself proves fatal; for when the patient survives the first operation, it is not until she has become exhausted by the successive accumulations and repeated evacuations of the fluid that she finally sinks from gradual exhaustion and irritative fever which succeeds the series of operations. Thus, I have before me a preparation of encysted dropsy of the ovary, taken a short time ago from the body of a patient who died of that disease. The tumour had been growing for about three years, and in the month of July, of last year, it had attained such a size, and interfered so much with the patient's health, that I was obliged to tap her then, for the first time, in order to relieve her of her urgent symptoms. She got over the operation remarkably well, and enjoyed tolerable health for three or four months; but in the end of November the tapping had to be repeated because of the great re-accumulation of the fluid and the recurrence of the symptoms. She thus again procured a temporary relief, but now of shorter duration, for in two months the tapping had to be again performed. Her recovery on this occasion was not so perfect, and when, in a few weeks afterwards, the fluid was again drawn off, it was found to be mixed with pus. From this time her health and strength rapidly declined; the paracentesis had again to be repeated three different times, and after each renewal of the operation she was found weaker than before, till at last she sank and died in rather less than a year from the time the operation had been first performed. Such a history is the common sad history of many a case of ovarian dropsy and ovarian tapping; though there are many where the progress of the disease is less rapid, and where the evacuation of the fluid requires to be effected much more frequently ere the patient finally succumbs. But all of them alike show that when the first tapping has been safely and successfully got over, the operation may usually be repeated often with less immediate danger. Why is it—you may ask,—that the operation is so much more dangerous when it is performed for the first time? It is usually supposed, and it has often been said, that tapping an ovarian cyst is a very simple operation. But, in first cases at least, it is really not so. After the operation has been once performed, you may often expect some adhesion to have taken place between the surface of the tumour and the abdominal parietes, so that the puncturing trocar most probably only penetrates these fibrous masses in future operations; while in first tappings, or in cases where no adhesions have been formed between the tumour and the abdominal wall, the peritoneum is wounded at two points, in one or both of which inflammation may readily be set up, and whence it would speedily spread over a large extent of surface. The fluid escapes usually to some degree into the peritoneum, and all may go on safely enough if this fluid be healthy in character, and unmixed with inflammatory products. But in first cases, with the operation usually postponed as long as possible, you will not unfrequently find that the fluid that flows out is mingled with inflammatory products; and should any of this deteriorated and morbific matter escape past the canula, or through the unclosed aperture of the cyst-wall into the cavity of the peritoneum, it would be sure to light up a degree of inflammation there which might soon prove fatal. We have not very many statistics relating to this subject, but I show you here a Table, from which you can learn both how frequently ovarian tapping proves fatal after its first performance, and how very speedily, in the majority of cases, the disease hurries on to a fatal termination after the practice of tapping the cyst is once begun. The table is drawn from an Essay by Dr. Fock, published at Berlin in 1856. Several of the patients were tapped many times. The Table shows merely the

DATE OF DEATH OF THE PATIENTS AFTER FIRST TAPPING IN 132 CASES OF OVARIAN DROPSY.

25 died within some hours or a few days,
24 „ „ six months,
22 „ „ the first year,
21 „ „ the second year,
11 „ „ the third year.
29 only were alive at end of last date.
132

The mortality from first tappings, or, in other words, the proportion of the 132 patients that died within a few hours, or a few days at most, after the operation was performed for the first time, was 1 in every 6. Professor Kiwisch, of Wurzburg, lost 9 patients out of 64, or about 1 in every 7, within twenty-four hours after their first tapping for ovarian dropsy. Several years ago Mr. Southam, of Manchester, published a table from different sources of the results of 20 cases of ovarian dropsy treated by paracentesis. Of these 20, 4 died within a few hours after the first tapping; 3 within the first month; 14 in all within nine months. Of the remaining 6, 2 died in eighteen months and 4 lived from periods varying from four to nine years. Dr. Meigs, of Philadelphia, speaks of his impression being that among the first tappings of ovarian dropsy which he has witnessed during his long and useful professional life, nearly one-half have been speedily followed by the death of the subject from peritonitis, developed soon after the performance of the operation. This mortality is certainly much larger than the average. But I have said enough to make you cautious and careful in regard to your prognosis in reference to tapping an ovary for the first time. In short, all experience and all statistical records go to show that the operation of tapping for cystic disease of the ovary is not always a safe operation, that it is not usually a satisfactory one, and that it very seldom proves successful. It is very rarely, indeed, that it ever produces a cure; at the best it is usually only a temporary palliative, relieving the patient from symptoms very distressing and immediately dangerous. But after a longer or shorter period the symptoms of distress and danger, thus abated and averted, are almost sure to return and call for a renewal of the operation; and so the case goes on, with intervals of relief following the repeatedly-performed operation, but growing always shorter and shorter, till finally the patient gets worn out and dies.

I shall continue my remarks on the Surgical Treatment of Ovarian Disease in my next lecture.

LECTURE XXIX.

ON OVARIAN DROPSY—ITS SURGICAL TREATMENT.

Continued.

GENTLEMEN—In my former lecture, when treating of paracentesis as the means of surgical treatment most frequently adopted in practice in the management of ovarian dropsy, I described to you—1. The cases requiring the operation of tapping; 2. The place or places at which the operation should be performed; and, 3. The results of paracentesis as a curative or palliative measure. There are still one or two points in reference to this operation demanding our attention, as,

4. *The Position, etc., of the Patient during the Operation of Paracentesis.*—Formerly the operation of tapping an ovarian cyst used to be performed in a manner at once cumbrous, uncertain, and inconvenient. The patient was seated in a chair, or on the edge of the bed. A sheet or bandage, with an opening in front opposite the point where the puncture was to be made, was then applied and adapted accurately to the abdomen. The ends of the sheet, after having been crossed behind, or one of them passed through a slit in the other, were intrusted each to an assistant, whose duty it was gradually, as the cyst emptied, to pull and tighten the bandage so as to make it act as an abdominal compress, which should serve at once to aid and accelerate the evacuation of the dropsical fluid, and secure the patient against the chances of faintness and syncope—accidents to which she was supposed to be liable from the sudden withdrawal of a large quantity of fluid when seated in an upright position. In this tedious and troublesome fashion the operation was a few years ago almost universally conducted. It is still so carried out by some practitioners. But I am sure no one has performed this kind of operation frequently, or seen it performed by others, without observing to how many drawbacks and discomforts the proceedings were subject—from the irregular adaptation and compression of the bandage; from its liability to change its own position, and to displace the canula; from its unequal tightening, and other

similar mishaps. To get over these difficulties, I proposed and put in practice, several years ago, a new method of operating, in which the compress is entirely dispensed with, and the operation is rendered far more simple and easy, at once for the patient, the practitioner, and the assistants. According to this plan the patient is not made to sit up at all, but is allowed to remain in bed in the horizontal posture; for she is less liable to syncope in the latter than in the former position; besides that she is by this means saved from all the fears and anxieties of what must always appear to her to be very formidable preparations. She is made simply to lie forward to the very front of the bed, and the protuberant abdomen is made to project to some extent beyond the edge of the bed. At the same time this part of the bed is, of course, to be protected by means of some folds of a sheet or towels. The trocar having been introduced into the cyst at the selected point, and with the usual precautions, the expulsion of the fluid is left to be effected at first by the elasticity of the abdominal walls, and afterwards by the force of the atmospheric pressure on the abdominal surface. As the evacuation goes on slowly and steadily, you can usually perceive the outlines of the secondary cysts—if such are present—gradually becoming more and more prominent; and in most cases we can perceive an elevated line passing from the anterior superior spine of the ileum towards the linea alba a little below the umbilicus, while on either side of this ridge the depression is usually most distinct. As the discharge proceeds, the cysts and abdominal walls covering it become steadily and uniformly compressed and flattened, far more steadily and uniformly under atmospheric pressure than under the pressure of any kind of mechanical binder. When the cyst is nearly emptied, the evacuation of the last remaining portion of the fluid may be favoured by having the patient turned somewhat more prone, and sometimes perhaps—but not often—gently pressing the sac with the hands. But let me advise you to be careful not to manipulate ovarian cysts too much during their evacuation, lest in incautiously raising the hand after exerting some degree of compression, you give an opportunity for the atmospheric air to be sucked up through the canula into the interior of the cyst; for inflammation of the lining membrane of the cyst is liable to be set up as a consequence of its entrance. After the cyst has been as entirely evacuated as possible, place your finger on the orifice of the canula and cautiously withdraw the tube; the abdominal parietes which it traverses being compressed by the fingers and thumb as the instrument is withdrawn through them. A pad of lint is adapted over the wound, and strapped down by strips of adhesive plaster. These strips should be about an inch in breadth, but two or two and a half feet long; for when you use them of this length—placing them across the abdomen of the patient—they form at the same time the simplest and most efficient belt or bandage that you can apply, in order to effect some degree of compression, and thus prevent all possibility of the occurrence of syncope. I used at one time to place a binder around the patient after completing a tapping in this way; but the application of it causes her some degree of annoyance, and I am not aware that it fulfils any indication that may not be better and more simply answered by the long pieces of strapping of which I have spoken. They are in reality a series of small binders, more easy in their adaptation, and as efficacious in their action as the larger linen or flannel bandage.

5. *Instrument required for the Operation.*—I have just a sentence or two more to add in regard to the kind of instrument with which the operation of tapping is to be performed, before I pass to the consideration of the other surgical means of treating cystic tumours of the ovary. Where the operation has already been repeatedly performed, and where you have reason to believe the surface of the cyst to have become adherent to the abdominal parietes, a perforation may be made with a lancet or bistoury at once through the abdominal wall and the wall of the cyst; and through this opening the fluid may be allowed to drain away. But generally you will make use of the ordinary trocar and canula for the evacuation of ovarian cysts, and in regard to that instrument only two remarks occur to me as worthy of your special attention: *First*, See that the trocar be sharp; for a blunt-pointed instrument causes the patient a degree of pain which may be almost entirely avoided by using an instrument in proper order, and which should be mitigated to a certain degree even in the use of a blunt one, by your making a preliminary incision through the skin with a lancet or bistoury. *Secondly*, Take care that the silver tube, or canula, be not too sharp at the point; for, when this is the case, it may happen that the lining membrane of the cyst will be injured, and even a blood-vessel wounded; and hemorrhage into the interior of a newly-evacuated ovarian sac is a most untoward complication, and destroys in no small measure the patient's chances of recovery. I told you a minute ago that the entrance of air into the interior of the sac during its evacuation was an accident which we ought to do all in

our power to avoid and avert. In tapping the cavity of the ple in cases of empyema or pleuritic effusions of any kind, the dange allowing air to regurgitate into the space from which the flui escaping is even greater than in abdominal tappings; and a vari of contrivances have been adopted with a view to prevent Canulæ with valves, or with stopcocks, or with a piece of soft tub or a fold of softened bladder or leather, attached to the extrem which would allow the fluid to pass outwards, but which collap under atmospheric pressure when the fluid ceased to flow, and v ously modified instruments, have also been used with the view preventing the ingress of air into the cavity which is being empti Perhaps the best kind of instrument that you can use for this p pose is one first described by Mr. Charles Thompson in the *Med Times and Gazette* of March 27, 1858. It consists of a canula, which the trocar fits tightly, like a piston, and which has a sm projection at the outer or lower part. (See Fig. 70.) To this p

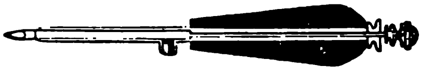


Fig. 70.

jection an elastic tube can be fastened with the view of carrying t fluid into a large tub or basin placed at the bedside; and if this tu be filled with water, and the end of it be immersed in that or any oth liquid, it acts as a syphon after the trocar is drawn back, and p motes the more effectual evacuation of the cyst. (See Fig. 71.)

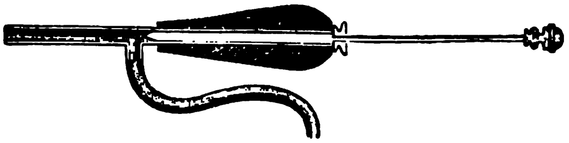


Fig. 71.

Whatever be the kind of instrument you employ for emptyi the cyst, you will, in many cases, find a difficulty in effecting i complete evacuation, which you cannot avert by any modification i the form of canula that you employ. This difficulty arises from t presence of small semi-solid masses which occur in greater or le abundance in many dropsical ovarian sacs, and which are apt to g into the tube, and plug it up, after the greater portion of the flui has escaped, so that the removal of the latter portion of the flui becomes obstructed. These occluding masses are sometimes forme of lymphy exudations or other products of an inflammatory proces

But they are occasionally found where no inflammatory attack seemed ever to have occurred, and in such cases they consist of the *débris* of the broken-down septa that once divided a single large cyst into several small ones, or of albuminous matters in a state of partial consolidation, or of blood-clots. Whenever, therefore, you go to tap an ovarian cyst, you ought to have some instrument by you with which you can free the canula of such obstructing masses, either by pushing them back into the cavity of the cyst, or, better still, pulling them outwards, so as to allow of the free escape of the remaining fluid. There is no instrument that you can use better adapted for this purpose than the ordinary uterine sound, which I should, therefore, advise you to take with you to every case of ovarian tapping. Besides making use of it for clearing the occluded canula, you can explore with it the interior of the cyst by passing it through the tube; and by this means you may gain some information as to the extent of the cavity, the number and size of the secondary cysts, and the presence of calcareous and other matters in the interior. For many years I was in the habit of using the uterine sound in this manner; and I have sometimes passed it between the surface of the tumour and the abdominal parietes, with the view of discovering the presence and extent of any existing adhesions. But I have seen dangerous symptoms result from the probing of dropsical cysts of the ovary, and I would advise you, therefore, to abstain from having recourse to it, except in cases where it is a matter of primary importance to gain certain information as to the condition of the interior; and even then, before having recourse to it, it would be well for you to pause and consider whether the information you are likely to receive by the process be of such value as to warrant you in subjecting the patient to the risks of inflammation attendant on the exploration. There is sometimes a farther source of difficulty in the complete evacuation of ovarian cysts, when a number of secondary cysts of large size are present; and in such cases the primary sac can only be emptied by making a perforation in the walls of the minor sacs, so as to allow them to collapse, and to be emptied of their contents also. This perforation you will be best able to make by means of a long sharp-pointed probe, such as the strong stylet of a large elastic catheter sharpened at the point. Passing this through the canula, and pressing the point of it steadily against the septum at its most yielding point, the instrument may easily be made to perforate it; and, if the contents of the subsidiary cyst be not too viscid, they will escape through the punctured orifice into the large cavity, whence they will escape through the canula. There is one great danger attendant on this proceeding, and that is, the risk of injuring one of the blood-vessels that may be ramifying in the septum; and you must therefore avoid it as much as possible.

III.—FORMING A COMMUNICATION BETWEEN THE INTERIOR OF THE CYST AND THE CAVITY OF THE PERITONEUM.

In addition to the operation of simple tapping, it has been proposed to operate so as to leave a permanent aperture of communication between the interior of the evacuated cyst and the cavity of the peritoneum. The proposal originated in the observation of such cases as I have already described to you when speaking of the occasional spontaneous cure of the disease. I have put on record several cases in which ovarian sacs happened to be accidentally ruptured by falls, etc., where the dropsical ovarian fluid in consequence escaped into the cavity of the peritoneum, where active diuresis was immediately set up, and where the patient has required no subsequent tapping. In some cases, where probably the cyst-walls are peculiarly thin, the distension and accumulation of fluid goes on for months and years, till at last the sac gives way, the ovarian fluid escapes into the peritoneum, there is profuse diuresis for a few days with rapid subsidence of the abdominal swelling, and then the patient remains comparatively well for a time, till months or years afterwards there is a re-accumulation of fluid, either in the old or in another cyst belonging to the mass, and Nature again repeats her secret tapping. I saw, for example, a few weeks ago, with my friend, Dr. Paterson of Leith, a patient who has been for eighteen years the subject of ovarian dropsy. Six times during that period have the cyst or cysts burst, allowing the fluid to escape into the peritoneal cavity, and to be removed by spontaneous and profuse diuresis. After the last time that this occurred, four years ago, the patient declares she became as "swamp and genteel" as any young girl. How and why does the fluid become thus absorbed and prevented from accumulation after this accident? On the principle, that while the cyst has a great secreting, but no absorbing powers, the peritoneal membrane, on the contrary, is richly supplied with absorbents, and has consequently a correspondingly great power of removing any fluids which may be effused into its cavity; so that, if a permanent aperture be established between the two cavities, the fluid that is poured out on the inner surface of the cyst escapes into the abdominal cavity, and is there absorbed from its peritoneal lining; so that in this way a balance, as it were, of secretion and absorption comes to be established between the two membranes, which prevents the re-accumulation of the fluid; and the establishment of this compensating balance in so far may be regarded as a form of cure. Dr. Blundell was the first, I believe, to suggest this mode of treatment, and Guérin, Bainbridge, and others, have tried to imitate it. The operation has usually been done by making an incision through the abdominal parietes, and cutting out a portion of the exposed cystic wall. Guérin attempted to fulfil the intended indication by making a subcutaneous incision in the wall of the sac by means of a small tenotomy-knife. But to this mode of operating there is first this great drawback, that once or twice large vessels ramifying on the surface of the tumour have been cut across, and proved the source of a fatal hemorrhage. I went on one occasion to England to see a patient operated on after the manner proposed by Mr. Bainbridge, viz. by cutting down on the tumour, and removing a piece of the cyst-wall. In that case, however, the fluid which escaped proved to be of a deleterious character, and when it came in contact with the peritoneum it gave rise to a degree of inflammation in that membrane which proved fatal to the patient. The risk of wounding the large superficial vessels of the tumour is certainly in some degree avoided when that plan of performing the operation is adopted; but, secondly, there is another strong, insuperable objection, common to it and to the method of Guérin, that it places the patient in the most imminent peril by throwing into the peritoneal cavity a quantity of fluid which is as likely as not to be of an inflammatory and highly irritating nature. I do not think, however, that because the operation as thus performed is a very unsafe one, the principle of the operation ought on that account to be entirely condemned and rejected from practice. On the contrary, I believe that by simply modifying it in some degree, it may yet prove to be one of the best and safest methods of treating some cases of the disease. One great source of danger in the performance of the operation, as I have just stated, is the admission into the peritoneum of a deleterious and dangerous fluid. But this may be avoided, and the operation so far modified and improved, by making a preliminary tapping of a portion of the fluid, with the view of ascertaining how far it is bland and benign in its character, or, on the contrary, morbid and dangerous; for then, if the dropsical fluid is bland, we may allow it to escape into the peritoneal cavity;

while, on the contrary, if it be acrid, discoloured, or commixed with blood or pus, or even doubtful in its character, it can be wholly withdrawn through the canula as in the common operation of tapping. I have tapped several patients in this way first; and, having made sure, from the appearance of the fluid that escaped, that it was healthy in character and unmixed with inflammatory or other deleterious matters, I have had no hesitation in stopping, as it were, the tapping during the course of it, shutting up the cutaneous orifice, and allowing the last part of the fluid to run into the cavity of the abdomen. By this simple means, I have, in more than one instance, succeeded in effecting a complete cure. The first principal point in the operation is to ascertain and duly appreciate the character of the cystic contents, before venturing to permit of their escape into the peritoneal cavity. But after having made this tentative tapping of the greater portion of the fluid contained in an ovarian cyst, we first meet with the most difficult step in connection with the operation. Of course, the remaining fluid can, for the most part, be pressed out easily enough into the abdominal cavity; but when the cyst has been thus emptied and collapsed, the punctured wound heals up readily and rapidly. If it is thus allowed to close, the communication between the interior of the cyst and the cavity of the abdomen is thus shut off, and the fluid merely collects again in the sac; and the condition of the patient is but little changed. The second and most important point is to keep the lips of the puncture in the ovarian cyst from closing by the first intention. The great obstacle to the success of the operation, therefore, lies in the difficulty of keeping open for a few days, or till all tendency to the adhesion and closure of its edges is past, the aperture of communication between the two cavities. To gain this object, and to prevent the too rapid healing-up of the punctured orifice, I have sometimes made use of a large quadrangular instrument (see Figs. 72 and 73), instead of the ordinary-sized trocar, for puncturing the cyst, as the wound made by an instrument of that size and shape does not heal up so rapidly as the small triangular wound left by the ordinary trocar. One of the best instances of a cure of ovarian dropsy that I have seen effected by this means occurred in the case of a patient who came to me, six or eight years ago, from Ireland. I made a small incision through the integuments of the abdomen, and having perforated the remainder of the parietes and the wall of the cyst by means of such an instrument as I have referred to, I drew off about four-fifths of the fluid through the wide canula and then shut up the orifice in the abdominal parietes. On the following day I found the ovarian sac round and still of considerable size, and pressed with considerable force upon the tumour and flattened it out, by bursting open the wound in the cyst-wall, and breaking up, as I believe, the adhesions that had already begun to form between the edges. This slight operation was repeated for four or five days in succession. Each day when I put my hand on the tumour I felt that it had become to some extent rounded and filled,—fresh fluid always having been secreted, and dammed in by the repeated attempts at union between the raw lips of the wound made by the puncturing instrument. Each day I compressed the tumour till the newly-secreted fluid made a way for itself into the peritoneal cavity by bursting through the loosely-healed aperture, until at last the tumour remained finally flattened, and a fistulous channel of communication was permanently established between the interior of the cyst and the cavity of the abdomen. In this way the patient was cured of her disease, and she is still, I believe, in the enjoyment of perfect health. This is certainly as simple and safe a method of curing the disease as could well be devised for those cases where the cysts are few and their contents non-inflammatory; and it approaches as closely as possible in its results to those rather rare, but most desirable, instances of cure which we sometimes see ensuing on a simple tapping. Indeed, I feel well assured that when these cases have been more carefully studied, and the manner in which the cure is brought about has been finally made out, it will be found that the lips of the internal wound do not cohere after the perforation of the sac, but from some fortunate accident or other are kept separate till all chance of their union is destroyed, and a permanent aperture remains, through which the fluid secreted in the cyst may escape into the abdominal cavity, to be absorbed by its peritoneal lining. I have tried once or twice to

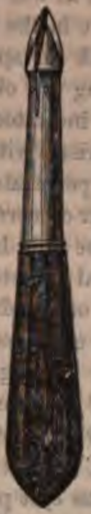


Fig. 72.

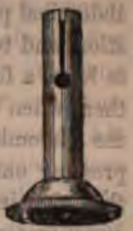


Fig. 73.

Fig. 72. The trocar with quadrangular point for making large openings into ovarian cysts.

Fig. 73. The corresponding canula.

make such an opening in the cyst-wall as was likely to remain permanently open, by cutting out a rounded portion of it with an instrument such as was proposed some years ago for punching out a round aperture in the trachea, but I have never been able to succeed in making such an aperture. The best means that I as yet know of for attaining the object in view is to operate in the manner I have already indicated—viz., after cutting through the skin of the abdominal parietes with a lancet or scalpel, to complete their perforation, and to penetrate into the sac with a large trocar, so made as to leave a four-cornered wound, like a Maltese cross—thus + ; and then, when the fluid has in part escaped, to close up the wound in the abdominal parietes, and keep that in the cyst-wall open, by pressing out once a-day, or oftener, a small quantity of the fluid that remains or is secreted afresh in the interior of the sac. In every case of tapping, and particularly of first tapping, where the fluid is found clear and bland-looking,—where there are no adhesions,—and where there exists no tendency to local irritation and inflammation, I think it would be advisable to attempt to make the aperture in the cyst permanent in this way by allowing a quantity of fluid to remain in it, and pressing out some into the abdominal cavity for several successive days, so as to prevent union of the edges of the trocar-wound in the cyst by the first intention, and thus establish a permanent opening or fistula in the site of the wound. But various other surgical measures have been tried in the treatment of ovarian dropsy, as

IV.—Establishing a Fistulous Communication between the Interior of the Cyst and a Mucous or Cutaneous Surface.

When speaking of the different modes in which Nature sometimes terminates a case of ovarian dropsy, I took occasion to tell you that she occasionally effected her object by producing a fistulous opening in the cyst at some point where it had become adherent to a mucous canal, and where there was thus afforded to her a channel for the constant escape of the freshly-secreted fluid. A similar orifice for the escape of the fluid has in other cases been successfully established on a cutaneous surface. Art has tried to imitate this curative plan of Nature too, but as yet with doubtful success. Thus, it has sometimes happened that an operation for the extirpation of an ovarian tumour has been left unfinished because of the great extent of adhesions that were found to exist between the walls of the abdomen and the surface of the cyst; and instead of having all the wound closed up again, it has only been closed in part, and the wall of the cyst has been stitched to the skin of the abdomen with a view of leaving a permanent aperture. Such cases have usually, I believe, proved fatal. But the desired object may sometimes be attained by performing the operation in a less dangerous manner, which you will be best able to understand and appreciate from the history of a case which some of you have seen, where the patient is in process of being cured—or, it may be said, is cured—by an operation of this kind. Allow me to read you the notes which I have of her case, taken in the beginning of July:—

"Mrs. M——, aged 39, has had four children, the last fourteen months ago. After the birth of her second child, which took place five years ago, she was surprised to find that no appreciable diminution in the size of her abdomen had taken place, and that she continued to be as large as when she was arrived at the full term of pregnancy. When she came to me, about six weeks after that confinement, I found her labouring under an ovarian dropsy, which was tapped a fortnight afterwards in the country, and a large quantity of clear fluid was drawn off. About thirteen months afterwards she gave birth to her third child, and then it was found that the fluid had been again accumulating. Nothing was then done, however, although the swelling went on increasing, till the patient again became pregnant, and gave birth to her fourth child on the 12th of May 1858. She had not at that date completed the full term of utero-gestation by about a month; but she was of such enormous size, and had such difficulty of respiration, that I was sent for to bring on premature labour. The child was born alive, and the mother was doing well, when in about a fortnight her medical attendant tapped the cyst, and drew off an enormous quantity of fluid, which was again found to be perfectly clear. He then injected some port wine into the cyst, the consequence of which was, that a very high degree of inflammation was lighted up in it, and rendered it necessary, in fourteen days more, again to have recourse to tapping. This time the fluid that was drawn off was purulent, and had a very bad odour. The wound was allowed to close up, and in about three weeks a considerable quantity of fluid had again accumulated. At this time I again saw the patient, who seemed almost moribund. I recommended that the fluid should be drawn off once more, and a piece of lint introduced into the wound to allow it to drain away as it was secreted. The operation was performed, and the patient did well. The tent of lint was withdrawn every night, and the fluid that had collected during the preceding twenty-four hours allowed to escape. About a month from the time that this treatment began to be adopted the patient was so far recovered as to be able to be out of bed. Since then she has continued to use the tent made of lint steeped in olive-oil; and now the ovarian tumour is reduced to about the size of an adult head, but continues still to furnish a purulent discharge."

At the time when this report of the case was drawn up, I introduced four long loops of iron wire into the interior of the suppurating sac, with a view of exciting such an amount of adhesive inflammatory action as might lead to its complete occlusion. The desired object has been in some measure attained—for the cavity is now much more contracted than it was a month or two ago, and the whole mass has undergone a diminution in size. This patient may now indeed be regarded as being so far cured of her disease, that she is in the enjoyment of excellent general health, and is equal to the performance of all her avocations; and although the continual slight discharge is still a source of some local discomfort, yet I have little doubt that that also will betimes cease to annoy her.

In the preceding, as in some other instances, the formation of an artificial fistulous opening between an ovarian sac and the external surface of the abdomen has so far proved quite successful. Under what circumstances should this practice be adopted? or why had I recourse to it in the case which I have related to you? I had recourse to it in that case—*First*, because the patient was evidently about to sink under the repeated accumulations and tappings; *Secondly*, because the lining membrane of the cyst was the seat of extensive suppurative inflammation, and any mishap in the next tapping which allowed the pus to escape into the cavity of the peritoneum would certainly have proved fatal to the woman; and, *Thirdly*, because the symptoms of the case led me to believe that the anterior surface of the sac, at one part at least, was firmly adherent to the abdominal wall in front, and I believed that I could tap the ovary through this part with safety, and make a large enough opening in this situation to allow of the free escape of the contents of the cyst, keep this aperture from closing, and change it, as I did, into a fistula. The insertion of a tent was used for this purpose. But other, and probably safer, measures, have been proposed to effect the same ends; and fistulous openings have, as I shall state to you at our next meeting, been made into ovarian cysts under different conditions than those that I have described.

LECTURE XXX.

ON OVARIAN DROPSY.—INJECTION OF IODINE.

GENTLEMEN—At the close of my last lecture I was speaking of the plan of treating dropsical disease of the ovary, by forming a fistulous communication between the interior of the cyst and a mucous or cutaneous surface. You must permit me now to make a few additional observations on this subject, before I pass on to the discussion of the use of iodine or other irritating injections into ovarian cysts.

The proposal to cure cystic tumours of the ovary by making a permanent opening or fistula into the cyst, is not a new one; for it was proposed by Celsus long ago to leave a metallic tube in the perforating wound made in the operation of tapping, with the view of permitting the fluid to drain afterwards away as it was secreted. It is a mode of treatment that would doubtless be pursued oftener at the present day, if we only had at command more certain diagnostic means of ascertaining, before having recourse to it, that the ovarian tumour at the place selected for tapping and leaving in the metallic tube, was so bound to the anterior abdominal walls by old adhesive inflammation, as, by amalgamating, as it were, together the abdominal wall and the contiguous part of the ovarian cyst, to prevent any great risk of peritonitis, or of effusion into the peritoneal cavity, from the operation. Or, again, if we possessed any sure and comparatively safe means—which, as yet, we have not—of previously producing artificially the required adhesions between the front of the cyst and the abdominal walls, the plan laid down by Celsus would be more frequently followed. Probably it may yet be found that the very form of tube which he suggests—a metallic tube—may, when left in, with adequate precautions, not be found so dangerous as many now suppose; and that, while its presence led to the effusion and formation of the desired adhesions, it at the same time established, in the least perilous manner, the fistulous communication which it was wished to form.

Fistulous communications between the interior of an ovarian dropsy and the exterior of the body, have, within the present century, been repeatedly attempted to be established in another way—namely, by tapping the principal ovarian cyst or cysts through the vaginal canal; and then, by means of a tube or catheter left in for some time, forming a canal in that dependent direction by which the ovarian fluid could subsequently escape, and the tumour become collapsed and contracted. Naumann, Recamier, Nonat, Ant. Dubois, Arnott, Ogden, Bishop, and others, seem all to have operated upon this principle, and some of them with successful results. This surgical mode of treating ovarian dropsies was adopted and practised by the late celebrated Professor Kiwisch, of Wurzburg, and is much bepraised by himself and his still more distinguished successor, Professor Scanzoni. They, I repeat, withdrew the fluid contained in the tumour, by puncturing the principal cyst or cysts through the roof of the vagina, and leaving either the canula or some other tube in the wound to produce a permanent fistula in that dependent direction. To enlarge, when necessary, the wound in the wall of the cyst, so as to facilitate the escape of the fluid, and obviate in some measure its tendency to close up, Scanzoni makes use of a knife with a long stalk, made to pass through the canula, and having a small projecting cutting extremity attached to it. (See Figs. 74, 75, 76.) Inflammation has frequently resulted from this operation, so severe in some cases as to end fatally. In others, after all risk of the inflammation has subsided, frequent injections of tepid water have been made into the cavity of the cyst, to clear out the inflammatory products, and other noxious matters that are sometimes found to accumulate in the interior of ovarian cysts that have been opened. Great success has been reported to have attended the operation in the hands of Scanzoni, who is said to have cured eight out of fourteen patients affected with ovarian dropsy by this kind of treatment. His cases were, no doubt, selected cases, and very properly so; for Dr. West

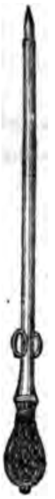
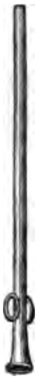


Fig. 74.


75.

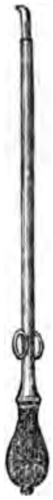

76.

Fig. 74. Scanzoni's trocar and canula for tapping ovarian cysts through the roof of the vagina.

Fig. 75. The canula or tube which is left in the wound.

Fig. 76. Bistoury for dilating the opening made by the trocar.

who, so far as I know, is one of the few who have practised this form of operation in this country, tells us that in two out of the three cases in which he operated, such a formidable degree of inflammation was lighted up that the life of the patient was placed in imminent danger. Recamier, Michon, and others, have lost their patients from peritonitis. Still the great proportion of successful results that have been reported in Germany, as having resulted from this method of surgical treatment, ought assuredly to have caused it to be more frequently adopted, were it not that in the majority of cases there exists a great obstacle to the possibility of tapping safely and easily per vaginam in the large extent of solid or semi-solid tissue that is usually found at the lowest part of an ovarian tumour. For, as I have already told you, while one or more of the cysts in the highest part of the tumour go on filling and enlarging upwards, the mass of cysts in the lowest part, where the tumour is subjected to pressure, remain small and undeveloped, so that it feels almost solid at the part reached through the vaginal vault; and the perforating instrument would have to penetrate through a thick layer of nearly solid tissue ere it arrived at the cavity of the cyst that requires to be evacuated. It is at this part of the tumour, moreover, that nearly all the vessels which contribute to its nourishment enter it, and in thrusting an instrument into the tumour in this situation, we run some risk of wounding some of these vessels, many of which are of very considerable size. It is as yet impossible, however, finally to determine the real or relative value of this operative procedure; but I have little doubt that in some selected cases it will yet be found to be the most appropriate means of treatment, and particularly in those instances of ovarian dropsy in which the diseased mass presses down upon the roof of the vagina, and is felt very distinctly fluctuating there, on making a vaginal examination. At present, certainly, the prejudices of the profession are all against it; but prejudices are but very uncertain indices of the value or worthlessness of any kind of operation, and are always liable to be suddenly overturned. An operative procedure which the members of the profession at one moment dread and decry, may be ardently adopted and advocated the next. Who would have thought, for example, but a few years ago, that we should be treating hernia by passing needles through the neck of the sac, and leaving foreign bodies, in the form of metallic ligatures, in that situation for six or seven days, with the view of producing adhesive inflammation? The experience of M.

Gerdy and others proves that the use of silk or organic ligatures for the same purpose is often attended with danger and death. Before we were made fully alive to the value of that peculiar characteristic of metallic wires, which permits of their continued contact with the various structures of the body without exciting any dangerous degree of inflammation, we were all afraid of intromitting with the peritoneum by the introduction into it of any kind of ligature or suture; and the man who would have been so bold as to leave a metallic or any other stitch in the neck of a hernial sac would have been held to be foolhardy, and the operation would have been considered hazardous. Few would have believed it possible that such an operation could have been performed successfully; and yet we have Rothmund telling us that he has performed it now in some twelve or thirteen hundred cases in succession, without once having a fatal issue. Such considerations may keep us from too rashly throwing aside or condemning a newly-proposed mode of treatment in any kind of disease. But, on the other hand, it would appear that it is not always safe to follow out too far any new principle of cure. Thus, seeing the perfect safety with which iron and other metallic wires could be introduced through the peritoneum for the cure of hernia, I imagined that this property might be made use of for the cure of hydrocele. Accordingly, in two cases of that disease, procured for me by Dr. James Young, I introduced a num[illegible] of iron wires into the cavity of the tunica vaginalis testis, by passing a long curved needle in a fixed handle into the sac [illegible] dependent part, and after the point of the instrument had [illegible] near the summit, passing through the eye of it three or f[illegible] threads, which were left in the interior of the sac as the ne[illegible] withdrawn. In both cases the fluid drained away by [illegible] these seton-wires, which were allowed to remain for tw[illegible] days, and by their presence there they excited such [illegible] adhesive inflammation as led to the complete oblit[illegible] cavity. The result, so far, was perfectly satisfactory [illegible] operation came to be tried by others, it was found [illegible] seton sometimes—perhaps by [illegible] physicall[illegible] irritating the parts it fretted [illegible] an [illegible] undesirably excessive degr[illegible]tion, wh[illegible] gone on to suppuration [illegible] I susp[illegible] obliged to content th[illegible] the [illegible] hydrocele by the in[illegible] of iodin[illegible] cavity of the dist[illegible] leads [illegible]

[illegible] I
[illegible] ping
[illegible] riod
[illegible] the
[illegible] long
[illegible] then,
[illegible] have
[illegible] tap-
[illegible] ling to
[illegible] —a rate
[illegible] greater
[illegible] pecially
[illegible] which will
[illegible] case of
[illegible] eventuate
[illegible] for some
[illegible] they finally
[illegible] perly-selected
[illegible] the result of
[illegible] in which I
[illegible] death ensued as
[illegible] to, I went to
[illegible] patient. The cyst
[illegible] for the first time;
[illegible] tincture of iodine;
[illegible] died six or eight
[illegible] to say how far the
[illegible] the mere operation of
[illegible] evacuation of a
[illegible] by as sudden and
[illegible] erhaps the comparative
[illegible] this operation of in-
[illegible] is due to the circum-
[illegible] preceding case, I avoid, as
[illegible] tappings. However this
[illegible] you that the operation does
[illegible] Thus Scanzoni records
[illegible] four cases, and that all his
[illegible] have such disastrous results I
[illegible] I feel convinced that had he
[illegible] in properly-selected cases, he

ful whether the cyst was truly ovarian, or merely in the region of the ovary. The subsequent history of the patient, who is still living, and enjoying a great share of good health, despite of the presence of a new series of ovarian cysts, has proved the case to be of ovarian origin. Since that period I have used iodine injections after tapping, in a great number of instances of ovarian dropsy.

M. Velpeau was probably the first, however, to suggest the application of iodine injections to the cure of ordinary ovarian dropsies. He proposed this use of iodine in 1843. M. Boinet has carried out the practice so extensively and systematically in France, as to entitle him to the credit of having introduced it to the notice of the profession in that country, and raised the proceeding there to the rank of a recognised operation. So much has been said both for and against the injecting of the preparations of iodine into ovarian sacs, that before we proceed to discuss the cases for which it is adapted and the *modus operandi*, it will be well for us to consider what we are likely to have as

1. *The Results of the Operation.*—Injection of tincture of iodine, or of some of the other preparations of that drug, has been had recourse to now in a great number of cases of ovarian disease of every variety. Unfortunately, however, the results of these numerous operations have not been given to the world in a form which renders them available for a statistical analysis, or which would enable us to estimate precisely the relative value of this as compared with other surgical methods of treating cystic tumours of the ovary. I have myself thrown iodine injections into ovarian cysts forty or fifty times at least; but I have no memoranda to enable me to show you the result in an exact tabular form. Our minds are all constituted very differently, and I regret to say, that for myself I have no power or disposition for the daily detail and annotation of any long series of individual cases and operations like this. The only statistical data of any value or extent that I am acquainted with in regard to this subject were brought forward by M. Velpeau on the occasion of a discussion regarding the treatment of ovarian dropsy by means of iodine injections, raised in the French Academy by M. Barth, a few years ago. According to these statistics, out of 130 patients who were operated upon, 30 died, 64 were cured, and 36 were temporarily ameliorated. In 20 out of the 30 patients who died, however, the operation was not confined to the simple injection of iodine into the interior of the evacuated cyst or cysts. The injection in these twenty cases was only had recourse to as

auxiliary to a much more formidable form of operation, of which I have already spoken—that, viz., where the canula used in the tapping of a cyst, or some other tube instead, is left for a lengthened period in the wound, with the view of keeping up a connection between the interior of the cavity and the external surface of the body so long as the morbid fluid continued to be secreted. Deducting, then, these cases, as not bearing directly on the point at issue, we have 110 cases and 10 deaths. In other words, the mortality from tapping, and the injection of iodine into ovarian cysts, according to these data, is 1 death out of every 11 cases of the operation—a rate of mortality which, if we may rely on other statistics, is not greater than that attendant on the operation of tapping alone, especially when performed, as we have seen, for the first time; and which will appear all the more wonderful if you recollect, that in the case of the ten patients where this mode of the operation did eventuate fatally, death did not always follow from the first injection, for some of them had been tapped and injected several times ere they finally succumbed. That the operation, when performed in properly-selected cases, is a comparatively harmless one, I can testify as the result of my own experience. For out of the forty or fifty cases in which I have had recourse to it, I have seen only one where death ensued as a result of the iodine injection. In the case I refer to, I went to some distance in the country to operate on the patient. The cyst was of enormous size, and the patient tapped for the first time; after the cyst had been evacuated and injected with tincture of iodine; symptoms of collapse came on, and the patient died six or eight hours afterwards. In such a case it is difficult to say how far the fatal result was due to the injection, or to the mere operation of tapping. For, let me again remind you, simple evacuation of a large ovarian sac has sometimes been followed by as sudden and speedy death in the way of collapse. Perhaps the comparative freedom from danger with which I have found this operation of injecting ovarian cysts with iodine to be attended is due to the circumstance that, since the occurrence of the preceding case, I avoid, as a rule, having recourse to it in all first tappings. However this may be, it is but right that I should tell you that the operation does not apparently always prove so innocuous. Thus Scanzoni records that he has had recourse to it only in four cases, and that all his four patients died. How he came to have such disastrous results I cannot in the least comprehend; and I feel convinced that had he but persevered with the operation in properly-selected cases, he would ultimately have come to form a very different opinion in regard to its value in the treatment of ovarian dropsy from that he at present holds. But while I can entirely corroborate Velpeau and Boinet in their statement as to the usual safety of the operation, I am by no means sure that Velpeau's statistics give us a correct idea as to its relative success. When he tells us that cures are produced in the proportion of more than one-half of all the patients operated on, I think the statement is too strong; and I believe that if a longer period had elapsed between the date of the operations and the time of their publication, it would most probably have been found that a greater number of relapses had occurred than his statistics indicate. That a cure of ovarian dropsy may, and frequently does, result from the evacuation of the dropsical cyst or cysts, and the subsequent injection of iodine into the cavity, is a point proved by the experience of numerous operators. I have myself seen cures accomplished in this way in a number of cases of several years' duration at least; but the proportion of ultimately and permanently successful cases I should estimate at less than one-third of all the cases operated on. In very many cases, again, where the tumour does afterwards reappear, I am certain that its growth has been for a time checked and most decidedly delayed by the iodine injection. That this has happened, for example, in a patient at present in the hospital, I think no one can reasonably doubt. The patient I refer to is an unmarried female, sixty-one years of age, who was under my care five years ago with a large multilocular cystic tumour of the left ovary. One of the cysts, which was at that period very large and fluctuating, was evacuated of a great quantity of fluid, and some tincture of iodine was injected. The patient had no bad symptoms of any kind afterwards. The progress of the disease seemed for the time to be checked, and the tumour continued to preserve its diminished bulk for nearly two years. By that time, however, it had begun again perceptibly to enlarge, and continued gradually to grow till its great size became a source of discomfort and distress. In the month of July last she, therefore, presented herself again at the hospital; but as the enlargement of the tumour seemed to depend on the simultaneous growth, and almost equal development of a great number of small cells, none of which outstripped the others much in size and prominence; and as the evacuation of one or two more of these small sacs produced but slight and temporary relief to the patient; she was advised to return home for some months, in the hope that in the gradual growth of the several cells, some of the septa would give way, and lead to the formation of a single large cyst, which might then be emptied with some prospect of success. The fluid, I may state, that was then drawn off was perfectly clear, and had evidently accumulated in a previously uninjured cyst, thus showing that the large cyst that had been previously tapped and injected five years previously had, in all probability, become completely obliterated. In the month of October the patient returned, and, as her symptoms had become urgent, I tapped one of the most prominent cysts, and drew off a quantity of fluid, which was still perfectly clear, and injected about five ounces of tincture of iodine into the cavity of the evacuated cyst, but without producing any good result. The patient fevered slightly, and had a threatening of inflammation in the ovarian cavity. The application of a large blister, however, proved sufficient to check it, and the patient soon recovered; but with the abdomen little, if at all, reduced in size, so that about six weeks afterwards it was found necessary again to have recourse to tapping. On this occasion about 140 ounces of an opalescent fluid were drawn off, which was tinged with a pale violet or greenish hue —a pretty sure indication that the fluid had simply re-accumulated in the cyst that had previously been emptied and injected with iodine. The patient has recovered well from this last operation. I think there can be little doubt, however, that in the first instance, when the patient was tapped and injected five years ago, the operation then performed obliterated the very large cyst which existed at that time, and had the good effect of staying the growth of the disease, and preventing its progress during that long period. In such a case as that, I have no hesitation in saying, that had no application of iodine been made to the interior of the evacuated cyst, it would have refilled rapidly; the tumour would in a short time have regained its original size, and the patient would very likely have returned to the hospital in five or six months, instead of keeping comparatively well for five long years. And I have seen various instances of a similar kind where the injection of iodine into the interior of an evacuated cyst has had the good effect of retarding for a considerable period the growth of the tumour, when it has failed in effecting a permanent and perfect cure. Sometimes, however, the injection of iodine seems to be utterly without effect. Why it should be so I cannot tell, but it frequently enough happens that the fluid re-accumulates in the cavity of a cyst that has been injected with iodine, just as rapidly, to all appearance, as if it had been simply tapped. It may be that in such a case the irritant is not applied properly to every part of the lining membrane of the cyst, and such is probably the true explanation of those failures which sometimes occur in cases where ioduretted injections are made into cysts of unusually large dimensions. Such cysts are almost peculiar to unilocular tumours: and perhaps the explanation of the failure in cases of the comparatively small cysts of multilocular growths, such as we have an example of in the patient of whom I spoke a minute or two ago, is to be sought for on the other hand in the irregularities produced in its interior by the intruding cysts around it which prevent the opposed surfaces from coming accurately into apposition, and so prevent all chance of obliteration of the cavity. We may thus have, as a result of the injection of some preparation of iodine into an evacuated ovarian cyst, either—1st, A complete cure of the disease; or, 2d, A temporary arrest of its progress; or, 3d, In a small proportion of cases there may be no amelioration of the patient's condition. In regard to the class of cases where the operation proves powerless for good, it becomes a fair subject of inquiry to examine whether it is ever attended with injurious consequences. Now, as I have already stated, upon this point my experience, so far as it goes, tends to show that the operation is not attended with any great degree of danger. Much has been said and written as to the evil effects likely to ensue from the escape of some of the injected fluid into the peritoneal cavity, and there cannot be two opinions as to the necessity of adopting every precaution for the avoidance of such an accident. But, after all, it is questionable whether the danger from this source be always so great as it has been represented; for it would appear that when, through some carelessness in the manipulation, iodine is allowed to come in contact with the peritoneum, the irritation it produces is purely local, and does not lead to the development of a general peritonitis. Inflammation is sometimes set up, however, in the interior of the cyst, as a consequence of the operation; but never, with perhaps one single exception, did the inflammation go on to such a degree as seriously to endanger the life of the patient out of the many cases where I have had recourse to it. In the exceptional case to which I allude an accident occurred such as I took occasion in my last lecture to warn you against. The canula was too sharp at the point, and injured some of the blood-vessels ramifying in the lining membrane of the sac, as was evidenced by the escape of blood along with the amber-coloured fluid with which the cyst was filled. The patient was very weak, and I had some hesitation in injecting anything into the emptied sac; but as the blood still continued to escape after the fluid was all evacuated, and there seemed to be no other means of arresting its flow, I injected six ounces of the tincture of iodine. Usually, as I shall explain to you immediately, I allow the iodine again to escape after it has been fairly applied to all the inner surface of the cyst; but in this instance the iodine probably produced coagulation of the blood and got commingled with it, for not more than a few drops could be made to run back through the canula. Such clotted masses naturally acted as foreign bodies in the interior of the cavity, and lighted up a degree of inflammation that kept the patient for many weeks in a precarious condition; but she ultimately recovered, and the sac has become gradually refilled. In only one single case, as I have said, have I seen death apparently ensue from the operation; and in that case the fatal effect seemed due to the shock of the operation. Death, as I have said, was produced by a kind of collapse, such as occasionally occurs after excision of the cervix uteri, perineal section in the male, etc.; and whether that be attributable to the injection of iodine, or was a result of the tapping, as we know it sometimes is, I am unable to determine. I have never, then, seen ioduretted injections excite a fatal inflammation in the case of ovarian disease; nor have I been able to satisfy myself in any instance that this operation has tended in any way to promote the growth of the tumour, or to accelerate the ordinary fatal issue; and I believe that this testimony will be corroborated by all practitioners who, in performing the operation, are sufficiently careful in studying the kind of cases requiring the operation.

2. *Cases requiring the Operation.*—Some of the more ardent advocates of this mode of treatment seem inclined to have it adopted and applied in every case of ovarian dropsy that comes before them; and I believe that in almost every form which the disease is liable to assume, and in almost every condition in which patients affected with it are likely to be found, injections of iodine have been made with the expectation of producing a cure. In the first case of the disease for which, so far as I know, injections of iodine were ever had recourse to, the lining membrane of the sac was already in a state of chronic inflammation at the time the operation was performed, and had been furnishing a purulent secretion for a lengthened period. The cyst had come, in fact, to resemble a large chronic abscess, that required to be opened from time to time; and it was probably the analogy between the pathological condition of the lining membrane of the ovarian sac and that of the walls of chronic abscesses that

led to the adaptation to the former of a method of treatment that had been often enough previously found successful for the cure of the latter form of disease. In this case the operation finally led to a cure, but not till after a lengthened period; and in all probability the cavity would have healed up at least as rapidly, had no iodine at all been injected into it, but a permanent fistulous opening made to allow the purulent fluid to drain away as it was secreted. In such a case, at all events, I should be more hopeful of a final successful issue from this latter mode of treatment than from the injection of any preparation of iodine, providing always that there had existed a sufficient amount of adhesion between the surface of the tumour and the peritoneal lining of the abdominal wall. For the operation of injecting iodine into an ovarian cyst presents this advantage over the other plan of treatment to which I refer, that it may safely be had recourse to when the tumour is mobile and unadherent; while, on the contrary, it is not contra-indicated by any degree of adhesion, however extensive, that may have occurred between the walls of the abdomen and the surface of the tumour. The occurrence of inflammation in the peritoneal covering of ovarian growths, and the formation of extensive adhesions between them and the adjacent surfaces, often form insuperable barriers to the operation of ovariotomy, but present no hindrance to the injection of iodine into the cavity of the cyst. But, on the other hand, I have in most cases been particularly careful to avoid injecting iodine into an ovarian cyst when I have noticed the contents to be mixed up with inflammatory products, although I have done so in a few cases where the application of the irritant to the chronically-inflamed surface seemed likely to produce no violent effect, but only a slightly alterative action; and I think it is always a safe rule to follow, not to have recourse to injections of any kind into an acutely-inflamed ovarian cyst. For if the dangers of tapping are tenfold greater in cases where some degree of inflammation has been lighted up in the cyst previous to the operation, the risks, it appears to me, will be only aggravated by the application of any irritating substance to the already morbidly-disposed surface. Again, in cases where you have any great degree of difficulty in effecting a full and complete evacuation of a cyst from the commixture of a multitude of gelatinous semi-solid masses with its fluid contents, the injection of iodine is apt to be attended with this drawback—that it produces coagulation of the albuminous matters contained in the cyst, and thus forms a number of clotted masses, which cannot escape through the canula, and are not likely soon to be absorbed; but which are very liable to act the part of foreign bodies, and lead to inflammation of the lining membrane. Probably some little chemical inquiry will betimes enable the obstetric practitioner to overcome this difficulty. Out of the body, the addition of a small quantity of aqua potassæ to the gelatinous fluid drawn from an ovarian sac will occasionally, if not always, make this fluid freely and perfectly mix with tincture of iodine; while before the addition of the alkali the iodine only mixed in points and patches with the ovarian fluid, and if injected by itself into a sac with these contents, would have consequently been most inadequately and imperfectly applied to the lining membrane, provided, at any part, any of the secretion of the cyst remained. With the exceptions which I have stated, I believe the injection of iodine into the interior of evacuated ovarian cysts may, as a rule, be had recourse to with safety, with retardation of the disease in many cases, and with permanent success and cure in some. The hope of benefit and of cure will vary with the character of the disease which is treated. In cases of multilocular cystic tumours, you can hardly hope by means of one single injection to produce a complete and lasting cure, for then you only empty and act upon the lining membrane of one out of a multitude of cysts, or at most of several cysts in communication with that one; and the utmost you can then usually expect is, that the chief cyst, or cysts, of the group will by this means become obliterated, and the progress of the disease be thus stayed for a time. In some rare cases, perhaps, the irritant injected into the cavity of one cyst may have the happy effect of inducing a certain amount of absorption in the walls of those around, so that in this way some of these other cysts may come also to be in some degree diminished. But I greatly doubt whether the iodine injected into one cyst ever has the effect of leading to the complete obliteration of the neighbouring sacs, unless it reaches their cavities; and this can only be done, in most cases, by having recourse to the separate tapping and injection of each particular cyst. Boinet places great faith in the treatment of multilocular ovarian tumours by injecting cyst after cyst; and there can be no doubt that a succession of cysts may be in this way cured by repeated injections. The cases, however, for which iodine injections seem to be best adapted are those where the tumour is unilocular, where the single cyst has been already tapped once or oftener, and still continues free from all trace of inflammatory action. In all such cases I believe iodine may be injected with the greatest possible degree of safety to th patient, and with the most hopeful prospects of a full and final cur By means of iodine injections I have, as it appears to me, freed number of patients from a disease which, if uninterfered with, o interfered with only in the way of a palliative paracentesis, mu sooner or later have carried them off; and, so far as I am able t judge, the cure has been complete and is likely to be permanent Such seems to have been the case, for example, with a young woman who called at my house, along with a relative, the other day, and who was one of the earliest patients that I injected with tincture of iodine. She was tapped for the first time eight years ago, because of an ovarian tumour which had been growing for about a year before, and had attained such great size as to interfere with her breathing, and otherwise to render her uncomfortable. The fluid drawn off was perfectly clear; and in about six months it had grown as large as before, but then seemed to remain stationary. Six years ago, exactly two years after the first tapping, she was again tapped, and this time a quantity of tincture of iodine was thrown into the cyst. She had a slight degree of pain afterwards, which was subdued by a one-grain opium pill; and remained in bed for a fortnight. From that time to this she has suffered from no untoward symptom, and at present it is altogether impossible to feel any tumour whatever in the pelvis, either through the abdominal parietes or through the vagina, although when I saw her two years ago, I could still distinguish an abnormal body there; and the contracted and atrophied cyst must doubtless still remain. How, then, is this operation to be accomplished?

3. *Mode of Operating, and Apparatus required.*—When you go to inject iodine into an ovarian cyst in any case where you have determined on having recourse to this operation, you require to take with you—1st, An ordinary trocar and canula, with which to puncture and evacuate the cyst; 2d, A long glass tube, with a nozzle, capable of being adapted to, 3d, A gum-elastic male catheter, with the opening at the end of the tube; 4th, A uterine sound; 5th, Ten or a dozen ounces of tincture of iodine, or of the liquor iodinei compositus; 6th, A piece of lint, and some long strips of sticking-plaster. In performing the operation the patient is placed on her side at the front of the bed, as I have already described to you at some length, and the full and complete evacuation of the cyst is to be effected in the same manner, and with precisely the same precautions, as in an ordinary simple tapping. Having emptied the cyst,

you place your finger upon the orifice of the canula, to prevent the possibility of the ingress of air, while an assistant fills the injecting apparatus with the fluid you have determined upon using. Perhaps the simplest and most convenient form of injecting apparatus is that which I now show you. (See Fig. 77.) It consists of a long glass tube (A), capable of holding eight or ten ounces of fluid fitted into a pointed wooden box or nozzle (B). With this instrument you can effect your purpose perfectly well, placing the palm of the hand on the wide mouth of the tube, to prevent the action of the atmospheric pressure when you wish to restrain the flow of the liquid from the lower orifice, and removing the hand when you are prepared to allow the liquid to run out into the ovarian sac. But the use of such an instrument is attended with some inconveniences, that may be obviated by introducing between the nozzle and the long tube that is passed into the interior of the cyst an inch or two of india-rubber tubing (C C), which you can close at will by means of a simple spring (D). So long as the spring is allowed to remain closed no fluid can escape from the tube; but the moment its hold is relaxed by the ends being compressed, the weight of the atmosphere suffices to drive out the fluid with the due degree of force; and should the flow appear to be interrupted, or should it cease altogether, from obstruction in the catheter, or some other cause, you can usually force it on easily enough by blowing into the tube with a moderate amount of force. To carry the fluid into the interior of the cyst you make use of the long elastic catheter, to which I have already referred. This is passed through the canula into the interior of the cavity; and before commencing the operation you must have made sure that the catheter and canula are of such respective dimensions that the former can be passed easily through the tube of the latter when it becomes necessary to inject. Before introducing the catheter into the cavity of the cyst, you must attach it to the point of the apparatus I have just described; and you must be careful to have it filled with the fluid by relaxing for a second or two the pressure of the spring on the intervening inch of india-rubber tubing. If you neglect this precaution,

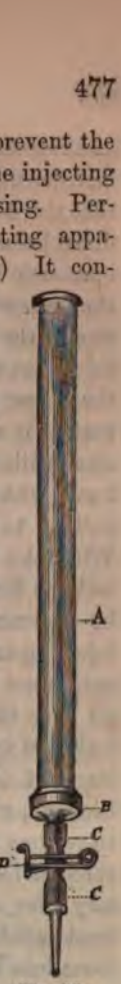


Fig. 77.

Fig. 77. Apparatus used for injecting fluids into the interior of evacuated ovarian cysts.

and introduce the catheter into the cyst before attaching it to the instrument, and without filling it with the iodine, you can easily see that the liquid, ere it can enter the cavity of the cyst, must first drive before it the air that is contained in the catheter, and the operation becomes unnecessarily and unfortunately complicated by the presence of the air in the newly-emptied cyst. While the injection of the liquid has been going on, the patient is still lying on her side; but after enough has been thrown in, the catheter is removed, the finger is again placed upon the orifice of the canula, and the patient is made to turn on her back, and perhaps in other directions also, while the tumour is manipulated and kneaded with the free hand, with the view of insuring a more effectual application of the irritant to the whole surface of the lining membrane of the sac. When this has been done, the patient is again turned on her side, and the fluid is allowed to run out. Its escape may even sometimes be hastened by pressure cautiously applied; for your object in injecting any preparation of iodine into the interior of an ovarian cyst is not to leave it there as a lasting irritant, but simply to paint all over its inner surface with a view of changing the secreting action of its lining membrane, and of setting up there the adhesive stage of inflammatory effusion. The injected fluid, then, having been all, as far as possible, again withdrawn, you proceed carefully to remove the canula, and afterwards to apply a pad of lint, and three or four straps of adhesive plaster, such as we saw to be necessary after an ordinary tapping. Such is the simplest, safest, and most satisfactory process that I know for introducing irritant injections into the interior of evacuated cysts of the ovary.

But there are still two questions in connection with the operation that you will be ready to ask me, and which I must endeavour briefly to answer. What kind of fluid, or rather what preparation of iodine, is best adapted for ovarian injections? and, What amount of fluid may or ought at one time to be used?

Quality and Quantity of Iodine required.

In reply to the former of these questions, the quality of the iodine solution, allow me to say, that the preparation which I have most frequently made use of for the cure of ovarian dropsy, is the ordinary Tincture of Iodine of the Edinburgh Pharmacopœia. This, as you are aware, is a very strong preparation, containing half a drachm of iodine in every ounce of rectified spirit. Fearing lest the alcohol in this preparation might produce its peculiar intoxicating effect on the system, in some cases where there was a likelihood of the fluid being to some extent retained in the cavity, I have used the Liquor Iodinei Compositus of the Edinburgh Pharmacopœia instead. This is a much less potent preparation, containing only eight grains of iodine in every ounce of the fluid, along with half a drachm of iodide of potassium. It has proved effectual, however, in a number of instances; and may be safely employed where you wish particularly to avoid all chance of the narcotic effects of the spirituous preparation. I have never seen these effects produced to any very alarming extent, even in cases where a large quantity of tincture of iodine has been used. At the worst the patient is incoherent, or lies in a drunken stupor for an hour or two, but she soon awakes from this condition as the exhalation and elimination of the poison goes on simultaneously from the lungs, the kidneys, and the skin. The alcohol is speedily dispelled; but for some days afterwards the odour of the iodine can still be perceived in the patient's pulmonary and cutaneous exhalations. You can also trace it chemically in the urine. As for the quantity of iodine to be used, that will, of course, vary according to the special case. When the cyst is of large dimensions, you can hardly hope to bring the irritant in contact with the whole of its lining membrane unless a considerable quantity be introduced. From eight to twelve ounces may be required for the larger class of cysts; and I have sometimes injected as much as fourteen ounces at once. For smaller cysts, from four to eight ounces may suffice; but there are probably very few cases where you will succeed in producing any appreciable effect by injecting less than six ounces. The quantity of fluid injected can easily be regulated either by having the glass tube graduated to ounces, or by keeping it in a bottle correspondingly marked and measured off.

There is still one point connected with the iodine treatment of ovarian dropsy, in regard to which you must permit me to make one or two remarks before I have done with this subject. I mean

4. *The Mode in which Irritant Injections effect a Cure.*—This is a subject that still requires investigation; and to the question, How does the injection of iodine cure ovarian dropsy? different authors have given different replies. Some say that it produces its effect by acting on the walls of the cyst in such a way as to destroy their power of secreting the fluid they habitually poured forth. Others, again, aver that iodine only cures by exciting such a degree of inflammation as leads to the complete obliteration of the cyst and the

adhesion of the collapsed and contracted walls. Whatever views have been held, seem to have been adopted merely as a matter of opinion. There is no observation on record, so far as I know, to show what actually happens in cases where iodine has produced a cure. My own impression is, that the usual effect of the injection of iodine is complete obliteration of the injected sac by adhesive inflammation. I ground this opinion, *first*, On the analogous effects of the injection of iodine for the cure of hydrocele; and *secondly*, On the direct observation I had an opportunity of making in the case of a patient who had at one time been subjected to the injection of iodine for the cure of ovarian dropsy. The patient I refer to came to me, many years ago, suffering from a multilocular ovarian tumour, for which she had been tapped several times and in rapid succession, without any better result than the most temporary relief. I injected the most prominent cyst with tincture of iodine. She recovered well, and went home much reduced in size, and showing no appearance of any new development in the tumour. Long afterwards she returned to Edinburgh; wishing to be again operated on as before as some of the secondary cysts had, after a time, taken on a more active growth, and the size of the tumour began to inconvenience her. She was fevered, however, by the fatigue of her journey, became rapidly exhausted, and died without anything being done surgically to the local disease. On making a post-mortem examination, we found the new cyst inflamed, and covered on the inner surface with patches of lymph such as you see in this preparation; and we could see besides what we supposed to be the old original cyst obliterated and filled up with plastic lymph, which was of a dark greenish colour, probably from the permanence of some of the iodine.

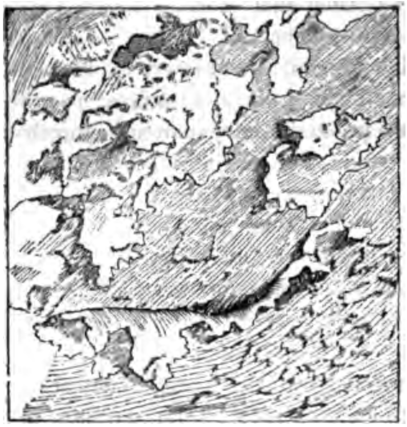


Fig. 78.

I believe I have now gone over most of the surgical means more commonly employed for the treatment of cystic tumours of the

Fig. 78. Showing patches of lymphy exudation in the interior of an inflamed ovarian cyst.

ovary, with the exception of ovariotomy. But on looking at the report of the discussion on this subject in the French Academy, to which I have already referred, I am reminded by a remark of M. Jobert of one other means of treatment, of which I have as yet said nothing, viz.

VI.—The Application of Electricity or Galvanism.

This means of treatment consists in causing a current of electricity, or galvanism, through the tumour, either by the application of the handles of the battery to the surface of the body or through the vagina; or by introducing, first of all, a number of acupuncture needles into the interior of the cyst, and causing the current to pass through them directly into the fluid. The effect, according to Jobert, would be the coagulation of the fluid, which, he avers, should take place in six or seven applications, and without determining any inflammatory action. He adds, that in a patient on whom he had operated in this manner, the tumour disappeared two years afterwards, and at the end of a certain time there remained only a circumscribed hardness in the left side of the pelvis. In the article on Dropsy of the Ovary, which I wrote for the *Library of Medicine* many years ago, I have spoken of this plan of treatment in the following terms:—"If we desired in ovarian dropsy to act upon the same principle as those which guide surgeons in the treatment of hydrocele of the tunica vaginalis, it would probably be safer to imitate them in their late attempts to produce absorption of the fluid and adhesive inflammation in the walls of the cyst, by the use of acupuncture needles, aided by the action of galvanism or electricity. We might certainly decompose the fluid by galvanic needles, and then that fluid itself might possibly act as an irritating and foreign body upon the lining membrane of the cyst; but would the inflammation thus lighted up be followed in any cases by sanitary results, in regard either to producing the ultimate absorption of the effusion, changing the action of the cyst, so as to repress its further secretion, or leading to its obliteration? Such results could scarcely be expected where the cyst or cysts are large, and it would be of little or no use in the multilocular form of the affection. Are there any cases of the disease in its early stage in which it would be likely to be of more benefit?" I have tried the effects of galvanism in many cases of ovarian dropsy, applying both through acupuncture needles, and simply to the surface; but the effect has usually been very slight, and I certainly never found any good result from it. On the contrary, in one patient in whom I made use of it, introducing some acupuncture needles into the interior of the cyst, and thus passing the galvanic current directly through the fluid, such a degree of inflammation was lighted up in the interior of the cyst, that she died in consequence of it. The operation was thus shown to be, in some degree, a dangerous one; and as the good effects of it seemed to be very problematical, I have latterly given up the use of it altogether.

LECTURE XXXI.

ON OVARIOTOMY.

GENTLEMEN—With perhaps one single exception, I have now discussed all the means of treatment, medical and surgical, which are usually employed for the palliation or cure of ovarian dropsy. I have tried to point out to you the respective dangers and advantages of each different mode of treatment; and, so far as my judgment and experience have enabled me to decide upon their comparative merits, I have endeavoured to guide you to a proper estimate of their relative value, and to a correct appreciation of the results likely to ensue from their adoption. From what I have told you, you will have gathered that there is no one form of treatment which should be carried out constantly in all cases, or in preference to all the others. Rather, I hope, you have concluded, that for the enforcement of any plan of treatment in any particular case you must be guided by a judicious eclecticism, carefully weighing the chances of death or the prospects of cure attendant on each form of operation, and choosing that which affords most hope of permanent benefit, and entails least immediate risk in that special kind of case. But if I have spoken clearly, you must have learnt further that, although a permanent and perfect cure may and does sometimes result from the performance of the operations already described, yet each and all of them may fail in effecting a cure, or even in producing more than the most temporary relief. Nay more, there is not one of them that is altogether free from danger, while some of them are fatal in a high degree. Hence you may meet in practice with cases where you cannot see your way to the employment of any of them. You may also meet with a patient who has been tapped again and again without the slightest benefit; or in whom the injection of iodine offers little chance of cure from the multitude of comparatively minute cysts; or where the formation of a fistula leading outwards cannot be followed out without the prospect of the most disastrous consequences; where the letting out of the fluid into the peritoneal cavity would prove almost certainly fatal, and where none of the other forms of operative treatment need for a moment be thought of.

In such a case you may well inquire whether there be not yet some other means which might afford your patient a chance of life, or whether you must stand by, impotent and powerless, and see her slowly and helplessly perish? The question has been already answered, to some extent, and many women who seemed doomed to die of this disease now live in the enjoyment of perfect health, and thankful to the bold and skilful men who freed them from their trouble by the successful performance of a dangerous and difficult operation. In such cases a complete cure has been effected by making an incision through the abdominal wall, tying the pedicle of the ovarian tumour, and cutting off the whole of the morbid mass. I allude, of course, to the operation of ovariotomy. I need say but little with regard to the

HISTORY OF THE OPERATION.

Excision of the ovaries, as you know, has long been performed and practised in the lower animals. This operation of "spaying," as it is called, is performed with the view of preventing the animals from breeding, and for the purpose of more rapidly fattening them. As applied to the human female also, the operation is not a new one. Athenæus, in his *Denosophists*—that strange and gossiping medley of the ancient "Curiosities of Literature"—tells us, on the authority of Xanthus, that "Adramyttes, the King of the Lydians, was the first man who ever castrated women, and used female eunuchs instead of male eunuchs;" and a similar practice is said to have been followed by several kings, and among a few nations of antiquity. Coming down to a much later period, we find Boerhaave relating that a swine-spayer once castrated his daughter, as being the most effectual means of putting an end to her licentious practices. But perhaps the first occasion where extirpation of the ovaries was had recourse to as a surgical operation, was when Percival Pott cut down upon a small tumour in either groin of a young female, and removed from both sides a body which had all the appearance of an ovary, and which was apparently—as proved by the physiological results, as well as by anatomy—nothing else than this organ contained in a hernial sac, and liable to pain on compression in its new position. It is usually stated that L'Aumonier of Rouen was the first to perform ovariotomy, in 1776; but, besides that it had been done before his time, it appears, when the history of his case is looked into, that his operation rather consisted of the opening of a pelvic abscess in a puerperal female, by cutting through the abdominal walls, and removing the ovary along with some of the other structures at the side of the uterus. The operation of ovariotomy, as now understood and practised, was not in reality methodically performed till the beginning of the present century. The propriety of removing ovaries which had become the seat of cystic or other forms of degeneration had been discussed previously, and defended by Plater, Vanderhaar, Delaporte, Morand, and others; while Diemerbroeck, De Haen, Morgagni, etc., gave expression to unfavourable opinions. But Dr. Ephraim McDowell of Kentucky seems to have been the first practitioner who actually performed excision of the ovary in the case of a patient who was the subject of ovarian dropsy; and this operation, which was performed in 1809, proved so successful, that he had recourse to it in at least eight cases afterwards. For a time it was not adopted by any other surgeons. In 1823 it was taken up by Mr. Lizars of this city, who opened the abdominal cavity for the purpose of performing ovariotomy, in four cases. In one of the four patients no tumour at all was found; in a second patient the tumour was not ovarian, but a pediculated fibroid tumour of the uterus, arising from the fundus, and was left unremoved. This patient lived for about a quarter of a century afterwards, and I saw her body opened by Dr. Myrtle. Both ovaries were small and healthy. In only two cases did Mr. Lizars find an enlarged ovary and remove it. One of these two patients died; the other recovered and lived for some years. I here show you the appearances presented by the abdominal organs in this last patient, as seen after death. There is no trace, you will observe, of any return of ovarian tumour, and the parts at the seat of the extirpated ovary are strongly adherent and matted together. Mr. Lizars' results were such as not to encourage surgeons to follow him; nor did he himself persevere in testing farther the propriety of operation. Indeed, the revival of it is principally due to the exertions and example of Dr. Clay of Manchester, who operated on his first case in 1842. Since that time Dr. Atlee of Pennsylvania, Mr. Spencer Wells, and various others, have performed the operation in a great number of cases. It has now been performed probably nearly 400 times in all, although the published statistical data do not show the result in many more than 300 cases. Dr. Clay has himself operated now in 93 cases. The operation, however, has met with great opposition from all classes in the profession; and before proceeding farther, it will be well for us to inquire into some of the more ordinary

OBJECTIONS TO OVARIOTOMY.

1. *It is a dangerous Operation.*—It has been objected to ovariotomy, first of all, that it is a very dangerous and formidable operation; and as a matter of fact the observation cannot be gainsaid. To open into the abdominal cavity of any patient, and remove from it a large morbid mass, is to expose that patient to many great perils, both immediate and more remote, however skilfully the operation may be conducted, and however sound the constitution of the patient herself may be. But if an operation must be rejected simply on the mere ground that it is dangerous, then there is an end to all the efforts of surgery; for no operation that is ever performed—not even the most trifling—is altogether free from danger. But this operation of ovariotomy, it is averred, is so much more dangerous than any other kind of operative procedure that it ought not to be recognised and performed as a legitimate surgical proceeding. Let us see how far this allegation is founded on fact, by comparing the mortality from ovariotomy with the mortality from other capital operations, which are not only considered as legitimate, but which surgeons count it a glory to perform. You will be best able to form a correct idea of the relative degree of mortality resulting from ovariotomy, as compared with other capital operations, if I set before you in a tabular form the results as they have been reported by different surgeons, or as occurring in different hospitals:—

TABLE I.—MORTALITY AFTER OVARIOTOMY AND AFTER VARIOUS OTHER CAPITAL OPERATIONS.

Reporter.	Nature of Operation.	No. of Cases.	No. of Deaths.	Proportion of Deaths.
Fock	Ovariotomy.	292	120	41 in 100, or 1 in $2\frac{1}{2}$.
Atlee	Ditto.	179	59	33 in 100, or nearly 1 in 3.
Simon . . .	Ditto.	44	32	73 in 100, or 1 in $1\frac{3}{8}$.
Clay	Ditto.	93	29	31 in 100, or 1 in $3\frac{1}{5}$.
Peacock . . .	Amputation of limbs.	72	35	49 in 100, or 1 in 2.
Cooper & Inman	Herniotomy.	622	296	47 in 100, or 1 in $2\frac{1}{10}$.
Various Surgeons	Ligature of innominate artery.	14	14	All those operated on have died.
Inman . . .	Ditto of subclavian.	40	18	45 in 100, or nearly 1 in $2\frac{1}{10}$.
Inman & Phillips	Ditto of other large arteries.	370	123	33 in 100, or 1 in 3.
Cox	Amputation at hip-joint for chronic disease.	24	18	75 in 100, or 1 in $1\frac{1}{3}$.
Malgaigne . .	Amputations of limbs.	852	332	83 in 100, or nearly 1 in $2\frac{1}{2}$.
Malgaigne . .	Ditto of thigh.	200	122	61 in 100, or 1 in $1\frac{2}{3}$.
Lawrie . . .	Ditto of limbs.	276	101	36·6 in 100, or 1 in $2\frac{1}{10}$.
Fenwick . . .	Ditto.	4937	1565	32 in 100, or 1 in $3\frac{1}{16}$.

The table does not profess to give an accurate analysis of the results in all cases of ovariotomy, any more than it shows the precise amount of mortality attendant on all the other kinds of operation referred to. The mortality from ovariotomy, like the mortality from other operations, differs much at different times, and when performed by different operators. In Germany they have been particularly unfortunate with this operation; and hence the statistics of Simon—which refer exclusively to cases operated on in Germany—show a tremendously high rate of mortality. It is difficult to understand why the operation should have proved so fatal in the hands of operators so distinguished as Kiwisch of Würzburg, and Langenbeck of Berlin, the latter of whom lost five out of the seven patients on whom he operated, while the former had as high a rate of mortality as one in two. This want of success is all the more striking when we contrast the results of the operation, as performed by these men, with the results obtained by Drs. Clay and Atlee from the same operation; the latter of whom has lost only one in three patients, while the former has had so low a rate of mortality as one in three and a fifth of the whole number of patients operated on. But, taking the data of the laboriously-compiled analysis of Fock, as presenting a fair average of the general results of the operation up to within the last few years, you will perceive that we have a mortality attending ovariotomy of about forty-one per cent, or, in other words, two patients die out of every five operated upon. Now, if you compare this rate of mortality with the rate of mortality attendant on other great operations, you will find that ovariotomy is less fatal than some, and but slightly more formidable and dangerous than others. It is hardly more fatal, for example, than amputations of limbs are shown by Malgaigne to have been in the great hospitals of Paris, where about thirty-nine per cent of all the patients die after amputation of the leg, thigh, and arm; and it is less fatal than the same kinds of operation are shown by the statistics of Dr. Peacock to have been in our own Edinburgh Infirmary, where more than forty-eight per cent of all the patients subjected to amputation of the arm and thigh died from the effects of the operation. It is less fatal than herniotomy; less fatal than the operation of tying the subclavian artery; less fatal than amputation of the thigh; and far less fatal than amputation at the hip-joint. Well, then, if ovariotomy is to be condemned as an unjustifiable operation, and rejected altogether from surgical practice, on the simple ground of the high rate of mortality attendant on its performance, then, to be consistent, surgeons must cease to perform various other operations which have been shown to be on the same level with ovariotomy as regards their ratio of mortality, or even to be more fatal than ovariotomy. They seem to regard the ligature of the arteria innominata as justifiable, though every patient upon whom the operation is performed dies, though they regard ovariotomy as not justifiable though three out of five operated upon recover. But it is argued by some surgeons that, though this operation may not be more fatal than some others which they think they do right to perform, yet ovariotomy is an operation to be eschewed because, in all proper and justifiable operations, the rate of mortality goes on diminishing with our advanced knowledge of their particular requirements, and with our improved means of carrying them out; while, in the case of ovariotomy, the rate of mortality does not diminish; but, they argue,

2. *The Operation is as fatal now as it was at first.*—This objection might be held to be of some weight, if only it were founded indubitably on fact. But it seems to be doubtful, if not utterly erroneous, and is probably traceable to the practice, too commonly pursued by writers on this subject, of giving only the general result of all the operations that have ever been performed, without making any analysis or statement as to the difference in the mortality of the later as compared with that of the earlier cases in which the operation was had recourse to. For if we look at the results of the operation as it has been performed by men who have specially directed their attention to it, with the view of finding what difference there is between the mortality of their earlier and that of their later cases we discover a very striking and most convincing contrast. Thus Dr. Atlee records that

In the first 101 Operations there was 1 death in every $2\frac{25}{38}$ cases, while
In the last 78 ,, ,, 1 ,, ,, $3\frac{5}{7}$ cases;

thus showing a diminution of nearly ten per cent in the rate of mortality in the last as compared with the first set of operations. Again, an analysis of Dr. Clay's cases furnishes a still more convincing proof of the fallacy of the objection to ovariotomy which we are now considering. Dr. Clay published the following table of the results of his operations in the year 1856, up to which time he had performed it in 71 cases:—

In the first 20 Operations there was 1 death in every $2\frac{1}{2}$ cases,
In the second 20 ,, ,, 1 ,, ,, $3\frac{1}{3}$ cases, while
In the last 31 ,, ,, 1 ,, ,, 4 cases.

Such a table shows how, in the hands of a careful and intelligent operator, the mortality from this severe operation may go on diminishing, till now Dr. Clay is able to perform ovariotomy with a better prospect of success than surgeons can ever have when having recourse to some of the more serious though very common surgical operations. Perhaps, if a corresponding analysis of the general mass of operations that have been performed up to the present period were made, we might find a corresponding progressive diminution of the general mortality. The results of the operation, in the hands of one operator at least, are not included in the table I have given. I refer to those of Mr. Spencer Wells, who has latterly devoted much attention to the improvement of ovariotomy, and who tells me that he has performed the operation now in sixteen cases, and has lost only six of his patients. In other words, the operation has been attended, in the hands of Mr. Wells, with a mortality of $37\frac{1}{2}$ per cent, or of 1 in $2\frac{2}{3}$ of all the cases—a high ratio of mortality, no doubt, but still, as he remarks, less than that attendant in our metropolitan hospitals on lithotomy in the adult, or amputation of the thigh. Indeed there seems good ground for hoping that when the operation comes to be still further improved, and is carefully performed in properly-adapted cases, the general mortality may yet be reduced to as low or even to a still lower standard. Even taking the mortality as it at present stands, I think I have said enough to convince you that ovariotomy is no more deserving of condemnation on the ground of its mere fatality than many other approved operations, and that it not only may be, but has been, improved upon in the course of years, during which it has been performed, to such a degree as greatly to reduce the ratio of its attendant mortality.

3. *The Disease is liable to return after the Operation.*—It has been urged, further, as an objection to the performance of ovariotomy, that the ultimate results are apt to be unfavourable; for that, even supposing the patient to have survived all the more immediate dangers of the operation, the tumour is liable to be reproduced, and then the patient is found to have been exposed to most imminent danger without becoming cured of her disease. Of all the arguments that have been brought forward in opposition to the performance of ovariotomy, I know none more unsound than this, for a recurrence of ovarian dropsy in a patient who has been subjected to excision of a dropsical ovary is, indeed, a very rare phenomenon. The only conditions under which such apparent reproduction of the

disease can occur are found in those cases where, after the removal of one enlarged ovary, the other, which may have been at the time quite healthy, or only in a state of commencing cystic degeneration, takes on a rapid degree of development, and ultimately attains a size equal to that of the organ already extirpated. In the great majority of cases where the operation has been had recourse to, the disease has been found confined to the ovary of one side only; and in removing that we remove the entire mass of the tissue which has a tendency to undergo cystic degeneration, leaving only the pedicle of the tumour, which is never likely to be the seat of such a morbid change. It is, in fact, one of the very few forms of morbid growth which we remove with the almost absolute certainty of freeing the patient, at once and for ever, of her disease. So far from finding it liable to recur, patients who have been subjected to the operation are now known to have survived for many long years, and sometimes to have subsequently given birth to children. But those who bring forward the possibility of the reproduction of the disease as an argument against the performance of ovariotomy, use a double-edged weapon; for the objection might be urged with tenfold greater force against operations almost daily performed and perpetrated by surgeons who plume themselves upon performing legitimate operations only. How frequently, for instance, have you all seen limbs lopped off for tubercular disease of joints or bones in the case of patients who are almost sure to die soon after from the development of the same disease in the lungs or some other internal organ? There are few operations in surgery more common than extirpation of the mammæ for scirrhous degeneration of the gland, and amputations of limbs which are affected with carcinoma are of very frequent occurrence in practice. Yet with what chance of ultimate success, think you, are these amputations and extirpations of malignantly-affected members had recourse to? Why, with the almost perfect certainty that the disease will return either in its former site, or in some other organ, and that at no very indefinite or distant date. In the case of lithotomy, again, the chances of the re-formation of vesical calculus are incalculably greater than the chances of the reproduction of an ovarian tumour in a patient subjected to ovariotomy. And, finally, to take once more as a standard of comparison the operation of ligaturing of large arteries for the cure of aneurism, which we saw to be on the whole as fatal as the operation of ovariotomy, is it not the case that a patient who has aneurismal disease at one point of his arterial system, is extremely likely to have it simultaneously or subsequently in other parts? and when any kind of cure of the most prominent and pressing aneurismal growth has been effected, is it not the case that the disease is then disposed to become more rapidly developed, and more distinct and dangerous in some of the other arteries? If, then, the possibility of the recurrence of the disease be regarded as an argument of any weight against the performance of ovariotomy, it must be held as weighing in a still greater degree against the performance of those other forms of operation where we see the possibility of the reproduction of the disease converted into a probability, or changing to an almost absolute certainty.

4. *The condition of the Patient is not improved.*—Again, it has been argued that a patient subjected to ovariotomy is not only not secured against the ultimate recurrence of her disease, but that she is left in a more infirm state of health after the operation than she would have been had her disease been allowed to run its usual course. Now, so far is this allegation from being true, that, as I have already stated, women subjected to this operation have sometimes borne families afterwards, and may have lived for many long years in the enjoyment of the most perfect good health. And if it does happen in some few cases that the patient remains for some time afterwards infirm and invalid, we know that the same thing happens often enough after the operation of lithotomy; for many adult patients who survive that operation, only do so to linger on as hopeless and confirmed valetudinarians. Very few of those who have had the thigh amputated have attained old age; and the ablation of a large portion of the body seems materially to affect the chances of long life. We very rarely know anything of the after-history of patients subjected to the so-called "capital operations" of surgery, and perhaps if we had any means of tracing on a large scale the subsequent progress of such patients, we might find that in the general mass, the fact of having gone through any serious operation militates in no small degree against the prolongation of the patient's life; or, to state the matter more correctly, as regards some cases, the existence of any morbid condition or disease which necessitates a serious and grave operation for its removal, is generally a state that is adverse to the hopes and chances of prolonged existence.

5. *The Operation is unnecessary.*—It has been argued, moreover, by those who object to the performance of ovariotomy, that the disease for the cure of which ovariotomy is undertaken is not of such a formidable and fatal character as to justify an attempt to cure it

by means of a deadly and dangerous operation. Ovarian dro they allege, is a simple and slow-developing disease, which does either rapidly or certainly destroy a patient's life, and does always interfere with her ordinary occupations ; and even whe does become a source of danger and distress, we have, they a verate, much simpler means to which we can have recourse for purpose of alleviating its symptoms and checking its progress. all men of any degree of experience know well, that though in s few and rare exceptional cases patients affected with ovarian dro may live on for long years with their health but little impaired, in the great majority of instances, the disease goes on steadily surely in its deadly and destructive course, and ends only with patient's dissolution—usually within a few years at most ; but the case is advanced in its course, within a few months, or it be a few weeks. Indeed, most of the chronic maladies for cure of which modern surgeons perform the more grave capital operations of surgery, are not necessarily so deadly in th course as ovarian dropsy, and most of them admit of more palliati and retardation by treatment than ovarian dropsy does. For, sin as the means usually employed for the arrestment of the progres ovarian dropsy, and for the alleviation of its symptoms, may appe I believe I have already said enough to convince you that the ration of tapping is at the best but a temporary palliative; th sometimes it hurries on the fatal march of the disease, and that unfrequently it is a source of immediate danger and death to t patient. Nor are any of the other simpler operative measures th we have at command for restraining the progress of the malady a bringing about a cure so altogether simple, or successful, or safe, to make us place any great hopes or confidence upon their pos sion or performance, or to hinder us from the investigation of means of treatment that is, undoubtedly, more certain to effect cure, even if at the same time it be a source of great immedia danger. No one can doubt, and, certainly, no one will deny, th ovariotomy is a very severe and almost desperate measure to ha recourse to for the cure of a disease, the dangers of which it may difficult to realise, as they sometimes, in the mind of the patie and of the practitioner, loom but dimly in the distance, although i every case of ovarian dropsy these dangers must force themselve upon us, and ever more formidably and more distinctly the near the end advances. But when we calmly consider the character an tendencies of the disease, when we fully realise its dangers, and when we fairly and faithfully appreciate the inefficacy of all the other different methods of treatment, the conviction becomes more and more strongly impressed upon us, that ovariotomy is not only in some appropriate cases a justifiable but a commendable operation. The question resolves itself much into this :—To what degree of danger is it lawful or necessary to subject a patient for whom there is almost no hope—or none—of curing by safer measures, and who is the subject of a disease that is now a source of sad discomfort, and is sure to be a cause of death at no distant period? All analogy teaches us—if I read aright the lessons and moral code of surgery—that whenever we have to deal with a malady which there is no hope of curing by milder measures, and which is otherwise inevitably fatal, we are not only justified, but we may find ourselves compelled, to put in practice an operation that jeopardises the patient's life, and that, too, where the disease is of such a character as not to be immediately or very speedily fatal. Do not surgeons cut off the limbs of patients who are suffering simply from caries or necrosis of the bones, and thus subject them to a certain mortality of one in every three or four, with the view of curing them of a form of disease that is not in itself either of a fatal or very formidable character, but which merely renders the patient partially or altogether unfit for his ordinary avocations? Have we not all seen limbs amputated which had become the seat of ulcers, painful, perhaps, and distressing, or simply indolent and untractable, but neither fatal in their ultimate tendencies, nor unfitting the patient utterly for his usual occupation? When a surgeon discovers a stone in a patient's bladder, he has rarely any hesitation in advising its removal; and only usually delays till his weapons are in order, and his friends or pupils are warned of the great event, ere he subjects his unfortunate victim to an operation which—in the adult at least —is hardly less dangerous and deadly than ovariotomy has proved. Yet patients live on for years with vesical calculi, in discomfort and distress it may be, but not altogether helpless or incapacitated for the work of life, or debarred from its enjoyments. They urge usually the early removal of cystic, fatty, cancerous, and other tumours, when placed externally on the body, under the plea that they will be more difficult and dangerous to cut out and eradicate if they are allowed to increase and grow very large. Does not the same logic apply in some degree also to ovarian growths? Many of these diseases that I have alluded to sometimes become spontaneously cured—even, according to Professor Walshe, cancerous tumours themselves—and, certainly, such a happy consummation rarely occurs in cystic degeneration of the ovary. And as for aneurism, which sometimes cures spontaneously, I believe the law of legitimate surgery in the case of that disease to be, that the operation of arterial deligation ought to be performed as early as possible, as then the patient has a better chance of cure. Surely the law that guides us in the ligaturing of arteries ought to hold good also for the performance of ovariotomy—an operation which we have seen in many cases to be in no degree more dangerous than the deligation of some of the larger arteries of the body. It is a momentous matter, truly, to take upon ourselves to advise a patient with ovarian disease, or with any other formidable disease, to submit to the dangers of the surgical knife, with a view to effect a radical and complete cure; and when asked by herself or her friends what ought to be done, it is a most difficult question for us to answer. It is just one of those cases where we must take both the patient, and the patient's relatives, into our confidence, explain to them the whole nature and tendencies of the disease, as well as the whole dangers of the operation, and the prospect it holds out of cure; and then leave it with them to decide whether or not the operation shall be had recourse to.

6. *The Diagnosis of the Disease is uncertain, and the Condition of the Tumour cannot be made out.*—The strongest argument that I know against the adoption of ovariotomy—and it has sometimes been urged as an objection to the performance of the operation—is the difficulty of making an absolutely accurate diagnosis of the disease; and as to whether the tumour be free and removable, or so adherent to surrounding parts as to preclude the possibility of its removal when the operation has been begun. It is true that even a great extent of adhesion does not necessarily prevent the tumour from being removed. The experience of various operators has proved this point. But it were greatly to be desired that we had some power of knowing beforehand what amount of obstruction we might expect to encounter from this cause in the course of the operation. and perhaps further experience and observation may yet enable us to obtain all the information in this respect that we require. In the meantime, are we to stand still and refrain from curing any patient, because in some other case we cannot form a perfect diagnosis as to all the conditions of the malady? For, if uncertainty of diagnosis be an insuperable barrier to the performance of ovariotomy, it must also be held out as an objection to the performance

of other operations for the cure of other forms of disease, where we are also liable, though in a less degree, to fall into errors in diagnosis. I have seen one of the best operators whom this or any country ever produced cut off a leg for what was supposed to be irremediable disease of the cartilages of the knee-joint; and when the joint of the amputated limb was cut open, the structures were all seen to be perfectly healthy, and the surgeon found that he had submitted his patient to all the dangers of a thigh-amputation for the cure of a hysterical knee. In my student days I saw a patient come into the hospital thinking he had a stricture; but he was told by the surgeon he had a stone in the bladder, and he was immediately, without further preparation, placed on the operating-table and subjected to the operation of lithotomy. When the bladder was cut open, however, and a sound was introduced through the wound, it was found that there was no stone there. According to Mr. Norris, it happens about once in every ten or twelve cases in which ligature of the subclavian artery is performed for the cure of aneurism of the axillary, that after the operation has been performed, the swelling which the operator supposed to be an aneurism is not aneurism at all, but a tumour of some other kind overlying the vessel. I do not instance these mistakes—and many such have occurred—as matters of reproach to surgeons, but merely to show you how in every case we are liable to error; and what I say is this, that the men who commit such practical blunders have assuredly no right to turn round and condemn others who have opened the abdomen with the view of performing ovariotomy, and found no tumour there, or the tumour so adherent as to be incapable of removal. I am no advocate for the performance of ovariotomy in every case of dropsical degeneration of the ovary, and I think the number of cases in which it ought to be had recourse to is, as yet at least, but limited. But I have no patience with surgeons who denounce and declaim against ovariotomy as a dangerous and deadly, an unsatisfactory and unnecessary operation, and who yet persist in performing other operations which are at least as fatal, which present as little prospect of a final cure—ay, and which are adopted for the remedy of diseases that might have well been treated by far milder measures—which are cured spontaneously or artificially far more frequently than ovarian dropsies, and that are far less deadly and fatal in their courses and tendencies. Nor will it do to say that this is an operation *sui generis*, performed for the cure of a disease which has no parallel in other morbid conditions of the body, for that might as truly be said of any other form of operation that is ever performed. On this topic I most cordially indorse the opinion of Professor Gross, of Philadelphia, the author of the latest and most complete work on systematic surgery in the English language. His words are these:—"My opinion has always been, that extirpation of the ovary is, under certain circumstances, not only justifiable, but imperatively necessary; and I must confess I have no sympathy with those who condemn this operation, and yet, almost in the same breath, remove an ulcerated cancerous breast, or a jaw-bone affected with encephaloid, in the hope, as is alleged, of enabling the poor patient to eke out a few short months of a miserable existence. Consistency is a virtue in surgery as it is in everything else."

LECTURE XXXII.

ON OVARIOTOMY—*Continued.*

GENTLEMEN—In my last Lecture I endeavoured to prove to you that ovariotomy was a justifiable operation; and that, although it was very formidable in its character, and often fatal in its result, yet we were fairly entitled to place it in the rank of legitimate surgical operations. Let us proceed now to inquire under what circumstances we would be justified in having recourse to it; or study—in other words—the kind of

CASES REQUIRING THE OPERATION.

From the remarks that I made in attempting to meet the objections which have been usually urged against the performance of ovariotomy (and perhaps I occupied more of your time in answering some of these objections than their weight really required), you may have been led to infer that I was inclined to have recourse to the frequent performance of the operation, or to recommend it in many cases of cystic disease of the ovary. But, so far am I from regarding this as the main or only means for the treatment of ovarian disease, that I believe we do right to have recourse to it only in rare and exceptional instances. But the question is, In what instances? Now, *First*, It is never to be dreamt of under any circumstances or in any case where the patient is at the same time suffering under organic disease or derangement of the kidneys, lungs, heart, or any other organ; never, in short, unless the constitution of the patient is in other respects healthy and favourable. *Secondly*, It is never to be thought of in any cases of cystic disease of the ovary, when that disease is mixed up, as it sometimes is, with carcinomatous or encephaloid deposits in the tumour. The co-existence, or the fear of the co-existence, of cancer with the cystic ovarian degeneration, is a complete barrier to the idea of ovariotomy. *Thirdly*, It is not to be had recourse to—at all events never in the first instance—in cases where the disease consists of a single ovarian cyst, or of a mass of ovarian cysts, with one cyst of such a preponderating and predominant size, as to make the diseased mass resemble a unilocular dropsy of the ovary. *Fourthly*, It is not to be had recourse to in these cases, because we have good hopes of often controlling and sometimes curing the disease by milder and safer measures; as by 1, paracentesis, and allowing the fluid, if bland, to escape into the peritoneal cavity; 2, by tapping through the roof of the vagina and, if necessary, establishing a fistula between the cyst and the vaginal canal; or, 3, by obliterating the cyst or cysts by the injection of iodine. The only cases of ovarian dropsy fit for ovariotomy, are cases of the common compound or multilocular form of the disease in which these preceding measures have failed to restrain the onward growth and progress of the disease towards the inevitable destruction and death of the patient. But all cases of compound or multilocular ovarian disease do not belong to this category. In a few, Nature herself, as we have seen, taps and relieves the patient from time to time. With these cases you would assuredly not intermeddle. In a few the course of the malady is very slow, and seems occasionally —but very, very rarely—to become, as it were, arrested in its march. With these cases you would not interfere in the way of any surgical treatment whatever. In some instances of multilocular ovarian dropsy the fistulous tapping of the largest and predominating cysts, or the injection of them with iodine, stays or retards, and occasionally so arrests the further development of the malady, that no more serious or severe surgical measures are to be considered necessary. But, unfortunately, in a large number of multilocular ovarian dropsies, all these measures prove, primarily or ultimately, totally ineffectual; palliative tappings come to be required more and more frequently; and it becomes a matter of almost mathematical certainty that the poor patient will ere long sink under their repetition, or under a continuance of the disease. Still, when the practitioner is driven to bay in this manner, the remaining cases are not by any means all of them cases for ovariotomy. Already in many such firm adhesions exist between the surface of the ovarian tumour and the contiguous surfaces of the peritoneum, that if the operation were begun it could not be finished. It is this circumstance that has perhaps more than most others that I alluded to in my last lecture, prevented ovariotomy from being adopted by some surgeons into the class of legitimate operations. Out of the 292 cases of ovariotomy collected by Fock, in only 200 instances was the operation completed, with the result of 111 recoveries to 89 deaths. But out of his collection of 292 cases, there were no less than 92 instances in which the operation, after it was begun, was not completed; and in 71 out of these 92 the cause of failure was the extent or strength of the old inflammatory adhesions of the sac to the contiguous peritoneum. Those practitioners that are in the habit of performing ovariotomy do not regard now a considerable amount or extent of adhesions as an insurmountable barrier to its completion; but where the adhesions are very great, the proper plan of surgical proceeding —if any surgical proceeding beside tapping is adopted—is, as I have already tried to show you, the establishment of a permanent or fistulous communication between the largest cyst or cysts and the cutaneous surface. The cases, then, fitted for the operation of ovariotomy are specially, if not entirely, those in which the tumour is multilocular; in which tapping and other milder surgical measures have failed to stay the progress of the disease, or are inapplicable from the great number and small size of the component cysts; in which the disease is evidently going on steadily, and, at no remote period, to the destruction of the patient; and yet the tumour feels entirely or comparatively free from morbid adhesions, and the general constitution of the patient is such as to present no counter-indication to the performance of this formidable operation. Under such a painful combination of circumstances, the question comes to be, Are we to recommend our patient to linger on for a few months or weeks longer, and submit to the usual progress and fatal termination of the disease, and to die without any surgical proceeding at all; or are we to counsel her rather to submit by ovariotomy to an operation that certainly may very probably inflict speedy death, but which, on the other hand, if it prove successful, gives her all the best chances of renovated health and prolonged life? I must here emphatically repeat what I have stated to you before, that in this, as in other capital and dangerous operations for chronic disease, the patient herself, or her friends, ought as much, or more than the physician, to decide the question of surgical interference or non-interference.

Supposing that you had made up your mind as to the possibility of removing the ovarian tumour, and that the propriety of the operation had been determined, it only remains to consider how the operation is to be effected. Let me, therefore, as briefly as possible, explain to you

THE MODE OF PERFORMING THE OPERATION.

1. *Preliminary Measures.*—Before exposing your patient to the risks of this, as of any other serious operation, you are, of course, bound, in the first instance, to prepare your patient, as far as possible, by attempting to raise the standard of health, by means of tonics, and to diminish in some degree the chances of inflammation, by putting her for a time on antiphlogistic diet and regimen. Some have recommended that the heat of the room in which the patient is to be operated on should be raised some degrees above the average temperature, under the idea that the cold air might prove irritating to the exposed peritoneum. But such a precaution seems hardly to be necessary; for there is no direct proof that the peritoneum is more likely to be inflamed in consequence of being exposed to the atmosphere at a low temperature, than it is when exposed to heated air. If the room be heated, care must be taken to prevent the air from getting too dry, by impregnating it with the vapour of water. When the operation used first to be performed indeed, the greatest care was taken to have heated cloths in readiness to apply to the peritoneal covering of the intestines, when by chance they were protruded; but those who are in the habit of operating frequently apparently lose all such great fears in regard to the free exposure and rough handling of the peritoneum. Even when inflammation has existed, and adhesions have been formed between the surface of the tumour and the abdominal wall and viscera, these adhesions have in numerous cases now been freely torn up, and the peritoneum roughly sponged and wiped, without giving rise to any such dangerous consequences as the former prejudices of the professional mind would have led us to expect.

2. *Instruments required.*—The instruments necessary for operation are but few, and easily enumerated; all that are required being a scalpel or bistoury for making the incision and dividing the neck of the tumour; a trocar and canula, for evacuating any large cyst; a clamp, for securing the pedicle, such as I show you (Fig. 79), or perhaps some acupressure-needles, instead—which would be of use also for arresting the hemorrhage from any vessels that might be divided in large adhesions—or you may prefer to use the artery-forceps and ligature, or torsion; and, finally, a needle and iron wire will be required for sewing up the wound.

3. *Position of the Patient.*—It has been the common custom to

place the patient near the foot of a bed, the thighs separated, and the feet supported by footstools, the surgeon sitting or standing between the legs of the patient. But there are obvious disadvantages in such a position. The surgeon is awkwardly placed, both for operating, and for seeing and securing bleeding vessels. So are the assistants. It is also a fatiguing position for a patient—one in which it is difficult to keep her covered; and one in which fainting is more likely to occur than in the recumbent position. The latter is much to be preferred. In hospitals the ordinary operating-table answers very well; but in private practice you are not likely to find in many houses the sort of bed or couch which is altogether suitable. You want a narrow table, which can be readily moved; and Mr. Spencer Wells tells me that he finds the table represented in this drawing (Fig. 80) answer the purpose remarkably well. It is a couch which he keeps in his consulting-room, and it is so made that, by unscrewing the legs and folding up the frame, it can be readily taken to a patient's house, as the old lying-in chair still is in some parts of Europe. The pillows are so arranged that they can be fixed at either end, so that they cannot slip off, and there is a movable tray beneath to hold the instruments. A woman is represented as placed on the table, in the position Mr. Wells prefers for ovariotomy. You will see that the table is brought to an angle of about 45° to the window, so that the light falls well both for operator and assistants. The gentleman who administers chloroform stands at the head of the bed. The operator is placed on the right side of the patient. An assistant may stand to the left of the operator, and two or three on the opposite side of the patient, all

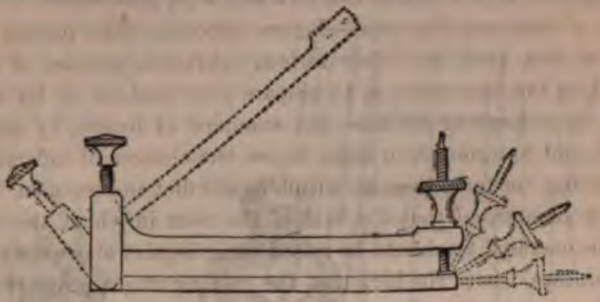


Fig. 79.

Fig. 79. Mr. Spencer Wells' clamp, for securing the pedicle of the tumour in cases of ovariotomy.

seeing well. The contents of the cyst are carried by the tube trocar to the pail below. The patient is carefully protected from cold by blankets folded round the feet and legs, and others round the chest, her own night-dress being pushed up under her arms, to keep it dry, so that there may be no necessity for changing it when she is lifted from the couch to her warm, dry bed.

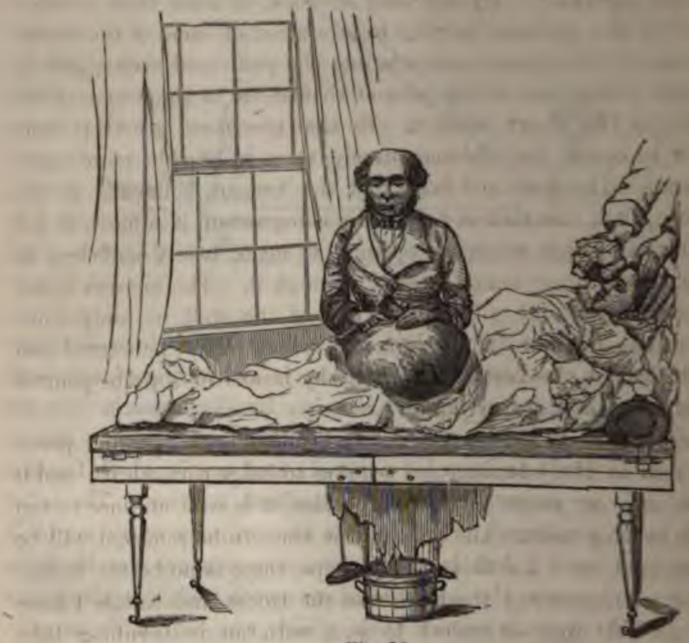


Fig. 80.

4. *The Operation.*—There are several stages in the operation, each requiring our special attention. We begin with

a. The Incision.—The operation is begun by making an incision with an ordinary scalpel or bistoury through the abdominal walls in the line of the linea alba, from the region of the umbilicus, downwards towards the pubes. Cases of ovariotomy were at one time divided into two classes, called respectively the operation by the short and by the long incision, according as this incision was small in extent, and begun below the level of the umbilicus, or was much longer, and stretched considerably above the umbilicus; and the relative dangers or advantages of the two modes of operation were at one time warmly discussed. It was very generally believed, at first, that the

Fig. 80. Mr. Spencer Wells' operating table.

smaller the opening in the abdominal parietes, the safer the operation would be; but further experience has shown that the greater liability to peritonitis and displacement of the bowels which was supposed to attend the operation by the long incision, is more than counterbalanced by the greater liability to laceration of some of the tissues and escape of the cystic contents into the peritoneal cavity, and by the greater difficulties which present themselves in the course of the operation by the short incision. So that now most operators seem to prefer to open the abdomen freely, so as to be able more easily to separate adhesions and bring out the tumour, believing, at the same time, that the risk of peritonitis being set up is almost, if not altogether, as great when an opening is made barely sufficient to allow of the tumour being dragged through it. The incision is not made at once through all the thickness of the wall, but only down to the outer surface of the peritoneum, which is first punctured and then divided in the rest of its extent by means of a probe-pointed bistoury or a herniotomy-knife.

b. Evacuation of Cyst or Cysts.—The tumour will be found pressing forward in the opening, and tending to bulge through it; and if there be one or more cysts of large size, it is well at once to tap them, as by this means the bulk of the mass to be removed will be much diminished. In this case, perhaps, there is no better instrument for withdrawing the fluid than the trócar and canula I have already shown and described to you, with an india-rubber tube attached to it to carry away the fluid to a receptacle on the floor, without exposing the patient's person and clothes to the discomfort of being soaked by it in running off. Here, however, such an effectual emptying of the cyst need not be insisted on, and therefore the instrument I refer to may be used for the sake of the decided advantages which it offers in other respects.

c. Separation of Adhesions.—The tumour thus diminished in size is to be drawn out through the opening in the abdominal walls; and to be able to do so you will require sometimes to separate any adhesions the tumour has contracted with the neighbouring organs. These adhesions can usually be most safely separated with the fingers or the handle of the scalpel. Sometimes, however, they are too firm and of old standing, and require the use of the blade for their division. Occasionally a vessel bleeds, or the inner surface of the abdominal wall on the severance of some well-established adhesion. In such a case you must endeavour at once to arrest the hemorrhage, and I believe you will succeed in doing so with ease and success by means of an acupressure-needle (see Fig. 83) e tered from the cutaneous surface, and passed through the thic ness of the abdominal wall till its point is seen at the side of th injured vessel a line or two from th bleeding orifice, when the needle is turne straight across the artery, and push back through the abdominal wall till i point finally emerges in the cutaneo surface, at a distance of one and a half o two inches from its point of entranc The head and point of the needle wi thus remain exposed on the surface of th abdomen (see Fig. 81, *a a*), while th vessel on the inner surface will be com pressed between the resistant tissues o the wall and the short bridge of the needle that lies expos towards the peritoneal cavity (see Fig. 84, *a*).

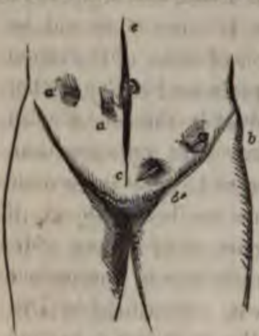


Fig. 81.

d. The tumour, then, having been brought out through th wound, you have next to proceed to cut across the pedicle, and us some means to prevent the flow of blood from its divided blood-vessels. And here, perhaps, we meet with the question of greates importance in connection with the operation. The earlier operat used to tie the pedicle tightly at its narrowest part with a piece o whip-cord, and then to divide it close to the tumour. But as i sometimes happened that the cord lost its hold and slipped off th cut extremity, thus giving rise to hemorrhage internally, this mean was speedily given up. Then, for a time, operators adopted th plan of passing stout threads or pieces of thin cord through th neck of the tumour at one or more points, and strangulating it i the same way as we do when operating for the cure of internal piles or an erectile tumour of the skin by means of the ligature. By this means it was found possible to control the hemorrhage most effect-ually, and when the threads had been duly tightened, their ends wer brought out through the lower angle of the wound in the abdomin parietes. But as these threads acted the part of irritant substanc in the peritoneal cavity, and lighted up in many cases inflammati

Fig. 81. Sketch showing the manner in which a blood-vessel may be secur by means of an acupressure-needle, and the pedicle of the excised ovary may b fixed against the abdominal wall. *a a'*, the head and point of a small need securing a bleeding artery (see Fig. 84, *a*); *b b'*, the head and point of a larg acupressure-needle fixing the stump of the ovarian tumour against the interior of the abdominal wall (see Fig. 84, *b*); *c c*, the extremities of the incision.

of this membrane; and as the gangrenous and ulcerating stump of the pedicle within the grasp of the ligatures was also a further source of irritation and of danger, all who have thought much upon the subject have felt anxious that some other means should be devised by which these dangers might be avoided. Dr. Marion Sims has proposed to substitute metallic ligatures for cord and other organic ligatures for tying and securing the ovarian pedicle. He did so under the hope that the metallic would prove less irritating than the organic thread, and might be left lodged *in situ*. But the pedicle on the free side of the ligature would be sure to die and slough, if the ligature were drawn tight, whatever was its composition. Mr. Spencer Wells, some time ago, suggested the division of the pedicle by the *écraseur*—a plan which has been followed successfully by Drs. Atlee and Pope in America in some cases, but in others it has not afforded that complete immunity against hemorrhage which is necessary for the safety of the operation. In London they now make use in most cases of a clamp (see Fig. 82) such as I have already shown you, which is screwed firmly across the pedicle, and after the tumour has been cut away, the stump, tightly embraced by the clamp, is brought out, and made to lie exposed on the surface of the abdomen transversely to the line of incision. You might not be able at once to conceive how the comparatively short stump of an ovarian tumour could thus be brought and kept on the surface of the abdomen, without producing an injurious straining on the organs and vessels with which it is connected. But if you will only bear in mind that the abdominal walls, so long and so much distended during the growth

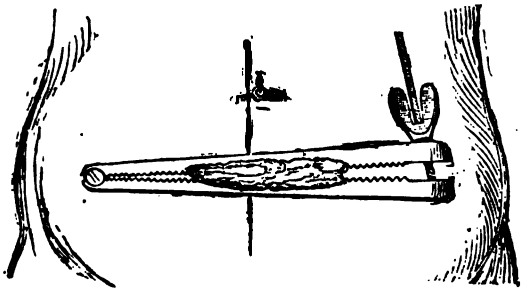


Fig. 82.

Fig. 82. Sketch showing the manner in which the pedicle is secured with the clamp, and the position in which the clamp and pedicle are kept when the operation is completed.—(*Wells.*)

of the ovarian tumour, must now remain collapsed and yielding
that mass has been removed, like the loose and flaccid walls of
abdomen after parturition, the difficulty will disappear. Th
certain degree of dragging, however, is still kept up—particu
in cases where the pedicle or stump happens, as sometimes oc
to be very short—we can hardly doubt; and, although the clam
in a number of cases been found to answer well, yet its u
attended with certain dangers and drawbacks, that render it
desirable to find out some simpler means of arresting the fl
blood from the cut ends of the vessels in the divided pedicl
believe that by the application of acupressure we may yet be
to check the hemorrhage effectually and more safely than by a
the methods hitherto employed for the purpose. A needl
needles, such as I show you (Fig. 83), might, before the pedi
divided by the knife or *écraseur*, be passed through the abdon
wall, and through one margin of the pedicle from without;
after being made to cross nearly the whole breadth of the pe
it could be made to pass through its o
margin, and then outwards again thr
the abdominal wall, so as to compress
pedicle between the exposed portion of
needle and the abdominal parietes wi
degree of force sufficient to arrest the
of blood from its injured vessels (see
81, and 84, *b*). The pedicle being
pinned against the abdominal parietes
the iliac fossa, there would be no drag
or displacement of the pelvic organs,
no danger of incarceration of the bowel, as has just happene
one case in London, where the pedicle was fixed to the wou
and the risks attendant on the sloughing and ulceration of

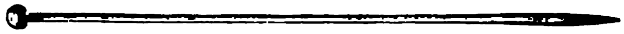


Fig. 83.

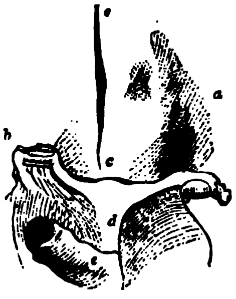


Fig. 84.

Fig. 83. Sketch of an acupressure-needle of small size.

Fig. 84. Diagram of an impossible view of the inner surface of the ant
abdominal wall, with the stem of a small acupressure-needle crossing a wou
artery at *a* (see Fig. 81, *a a′*), and the stem of a longer needle passing across
stump of an excised ovary, and compressing it against the abdominal pariete
b (see Fig. 81, *b b*); *c c*, the extremities of the incision through the parietes
the uterus; *e*, the rectum.

stump would be avoided, for the acupressure-needle could be removed after fifty or sixty hours, or perhaps even less—after the vessels had become occluded, but before the pressure exerted by the needle had been kept up for such a length of time as to produce that ulceration which we know to be the necessary result of too long-continued pressure on any portion of the animal frame. Should the resistance offered by the abdominal walls not be found sufficient to enable the single acupressure-needle to produce efficient compression, a second or third could be introduced either parallel with the first, or each embracing only a limited portion of the pedicle, or crossing the others as they enter and emerge from the pedicle. If we can succeed in restraining the bleeding from the divided neck of the tumour by some such means as this, we shall be able to do away with some of the greatest sources of danger in connection with the operation, and so to perform it with better hopes of ultimate success.

e. Closing the Wound.—Having secured the pedicle of the tumour, all you have now to do is to wipe the peritoneum thoroughly clean, and then to proceed to close up the external wound. This you may do either by means of needles like those used in the operation for harelip, or, what is equally efficacious, by means of simple metallic stitches—either of silver or of iron. If you are operating on a wealthy patient, or on the happy inmate of some overflowingly wealthy institution, you may, perhaps, prefer to use the suture of silver, which certainly has this superiority over the iron thread, that it is more expensive. But usually, I believe, you will rather employ the iron wire, which is at once cheaper and stronger, and as efficacious and manageable. A variety of needles have already been invented for stitching up wounds with metallic threads; but, however ingenious, they are all quite superfluous, for the instrument that you will find the most convenient and the best for sewing wounds with wire-threads is the common needle in a fixed handle, generally spoken of as a "tumour-needle," or "pile-needle," and constantly used for passing ligatures through the base of hemorrhoidal and erectile tumours which we desire to strangulate. By means of such a needle with a considerable curve, you can easily take a deep hold of the abdominal wall; and in closing up wounds in the abdomen, it is advisable always to pass the suture deeply, so as to keep the divided margins of peritoneum in perfect contact. The needle is passed unarmed through both sides of the wound—close down upon the peritoneum, but without wounding it. I should say, however, that

Mr. Spencer Wells is strongly in favour of carrying the sutures through the peritoneum, as he thinks the cavity is then more effectually protected from the pus and secretions of the wound. When the point has protruded through the further side, the end of the wire is passed to the distance of half-an-inch or so through the eye of the needle, which, as you know, is situated near its point; and when the needle thus armed is withdrawn, it leaves in its track the wire-suture, which may then be twisted or tied across the line of incision, and which need not be removed till the whole wound is completely united.

5. *The After-treatment.*—When the operation has been completed the patient is put back to bed, and kept thoroughly clean, quiet, and undisturbed. No special kind of dressing is required for the wound, and, indeed, you will find it best to keep it altogether undressed, and merely protected by means of an arched frame placed over the patient's body. Only in cases where the clamp is made use of, and the sloughing stump of the pedicle is brought to the surface of the abdomen, it is sometimes found necessary to apply a poultice of charcoal, or some other disinfectant, to counteract the disagreeable odour arising from the putrescent discharges. I would further enjoin on you the propriety of keeping the patient under the influence of opium, with the double view of dispelling the pain and depression which almost necessarily succeed such an operation, and of checking, in some degree, the action of the bowels—an indication of paramount importance, when we remember how essential it is to the ultimate success of the operation to have all the parts concerned kept for some days at most perfect rest. At the same time the patient may be allowed to partake freely of ice, which is useful at once in counteracting the sickening effects of the operation, and of the opium, and in moderating the feverishness to which she is inclined. When there is a tendency to sinking, the patient must have an allowance of wine or brandy. Peritonitis not unfrequently springs up; and, of course, you must be prepared to meet it, and to treat it by all appropriate measures. We may sometimes expect also to meet with other

RESULTS OF THE OPERATION.

I have already spoken at sufficient length of the degree of mortality attendant on the operation; but I have said nothing as to the ordinary sources of danger. These are, however, so obvious, that I need not do more than name them now. Thus, for example, many patients die exhausted, from the shock of the operation. Sometimes hemorrhage occurs from some of the pelvic vessels, which it is found impossible to control. A case occurred lately in London where hemorrhage nearly proved fatal, which was found to be proceeding from an injured vein in the pelvis; and I have known a patient dying some hours after the operation, where there can be little doubt that the fatal issue was mainly due to the immense quantity of blood lost from a wound in some of these veins, which it was impossible to trace out and close. Fatal hemorrhage, of a secondary nature, sometimes, though rarely, occurs from the vessels in the stump, and carries off the patient. Perhaps the most frequent cause of death in connection with the operation is peritonitis. Occasionally patients survive all the more immediate perils of the operation, to be wasted away and finally to succumb under the effects of prolonged discharges and chronic inflammations. But sometimes, also, we have the happiness of seeing patients survive all the dangers of the operation—both immediate and more remote—restored to the active duties of life and the full enjoyment of perfect health, and some of them even giving birth to families afterwards.

LECTURE XXXIII.

ON CRANIOCLASM :

MODES OF DELIVERY IN OBSTRUCTED LABOUR.

GENTLEMEN—I propose to devote the lecture of to-day to the consideration of a subject rather out of our ordinary course of gynæcological instruction, and appertaining more to the purely obstetric department of our course — viz. Cranioclasm. Under this term (derived from κρανίον, *the skull ;* and κλάω, *to break in pieces*) I would have you to comprehend a new kind of operation, which may with great advantage, in my opinion, be substituted in place of craniotomy and cephalotripsy, in those rare cases of parturition in which we deem it necessary to have recourse to some means of diminishing the fœtal head, with the view of terminating with safety to the mother labours which appear otherwise impracticable. And I make the proposal with much confidence, believing as I do, that, when put in practice, this new operation will be found to be at once more safe for the patient, and more easy for the practitioner, than either of those two dangerous forms of operative procedure which it is intended to supplant and supersede.

In order to enable you to understand aright the nature of the operation, and the class of cases requiring its performance, you must first allow me to state, by way of introduction, that you will find occurring, in the course of your obstetric practice, cases—not very often perhaps, yet with such frequency as to render it incumbent upon you to be prepared to meet them—cases where there exists such a disproportion between the size of the child that has to be expelled and the capacity of the pelvic canals through which it has to pass, that the unaided efforts of nature will prove insufficient to complete the parturient process. Or even in the course of a labour where all the elements seem normal, and the adaptation between the maternal passages and the body passing seems just and accurate, complications of such a clamant character may spring up as to compel you to have recourse to immediate delivery if you would wish to save your patient's life. It is chiefly, however, of the former class of obstructed labours that I have now to speak—those, viz., where either the fœtal head is so large, or the maternal canals so contracted, as to preclude the possibility of nature being able to terminate safely the labour by her own unaided efforts. There are various operations to which we may have recourse in order to procure the artificial delivery of the child in this class of cases. Thus we may sometimes effect delivery by means of

1. *The Forceps.*—From the earliest times in which midwifery was practised, accoucheurs must often have felt the desirability of being able to seize the head of the child between the hands in order to hasten its progress in cases of difficult and tedious parturition. But the human hands are too thick and large to be thus used as the means of seizing and extracting the fœtal head when it is arrested in the maternal passages. In order to get over this difficulty we use the forceps,—which are in reality nothing else than a pair of iron hands,—thinner and slimmer than our own, and thus capable of being pushed past the fœtal head so as to embrace and catch it. This instrument, first made and used by the Chamberlens in this country, and afterwards modified and improved by various obstetricians, is in constant use, and enables us to effect a speedy delivery with safety to both the child and mother in a multitude of cases where the unaided efforts of nature might prove more dangerous, or might fail entirely to complete the process of parturition. In British midwifery some practitioners have ventured to suggest that while it is quite proper to extract the fœtal head, when it is low down in the pelvis, with the forceps, it is improper to extract with them the fœtal head when it is arrested high up in the pelvis. In other words, these practitioners employ, and never hesitate to employ, the so-called short forceps, but they do not employ the long forceps. Certainly this doctrine is utterly untenable. No foreign accoucheur indulges in similar prejudices. Indeed, abroad they use alone, as we shall see in another part of the course, a long pair of forceps. And I believe that it would indeed be best for you and for all of us only to use one pair of forceps, viz. a long pair, for seizing the head both when it is situated either high or low in the pelvis. A single pair of forceps would save the bulk of the obstetric armamentarium; and when accustomed to use one pair for all cases, you will betimes assuredly come to use that pair more easily for yourself, and more safely for your patient, than if you employ one kind of forceps for one description of cases, and a second pair for

another description of cases. The simplification of our instrume always adds both to their safety and their success in practice.

2. *Turning.*—Another operative procedure, by means of wl we may often succeed in effecting a safe and easy delivery in c where the fœtal head is high up in the pelvis, or not yet ent the brim, and when Nature is found incompetent to the task that known as podalic version. The principle of this operat depends on the circumstance that the podalic extremity of the cl is the smaller. It thus passes easily through a pelvis where larger cephalic extremity would pass only with the greatest d culty. Besides, when the lower extremities and body of the ch are first extracted, they serve to distend the maternal passages some extent, and to prepare them for the transit of the larger a partially compressible head. For when we examine the fœtal he itself, with a view to discover how it can most readily pass throu a contracted orifice, we find that the hard unyielding base of t cranium is the narrowest part, and that if this be first dragg through, a degree of compression, quite compatible with the safe and life of the child, may be exerted on the wider vault of t cranium sufficient to permit of its transit also. When the verte on the other hand, presents, the widest part of the skull and of t whole fœtus is at once attempted to be forced through an openi with diameters smaller than that of the skull itself, and in a po tion in which compression and a safe degree of diminution in t size of the fœtal head cannot be effected. In short, the whole chi represents a wedge or cone, the apex or narrowest part of which represented by the feet; and the skull represents another wedge cone, of which the narrowest part is the base. And you know th when we wish to make a conical body that is slightly compressib at its broadest end or base, pass through an orifice or canal that slightly smaller than this base, we effect our object most readily- not by attempting to force in the base or broadest part of the co first, but by introducing the narrow portion through the opening, a then dragging the rest of the body through. What we do, then, performing this operation of turning, is to interfere with the futi attempt of Nature to force the child through a contracted canal pushing the head first, by turning it; so that the feet are fir brought down, and then using these as media by which we m afterwards pull through the partially compressible head of t infant.

3. *Craniotomy.*—By the use of the forceps, and by means

turning, we can bring many children into the world alive that would have inevitably perished had their birth not been hastened by the aids and appliances of art. But there are cases ever and anon occurring where the fœtal head is too large, or the maternal passages are too small, or the uterus is too rigidly contracted to admit of the delivery of the child alive without bringing the life of the mother into the most imminent danger. In such instances we can still save the mother's life by sacrificing that of her progeny. For by opening the head of the infant by means of perforating instruments, we can remove the contents of the cranium, and then break down the vault of the skull itself, and bring away the fragments piecemeal, until only the base of the cranium and the bones of the face remain to be extracted by means of crotchets and other instruments. This frightful operation has been recommended and had recourse to, alike in cases where the child was living, and where it was dead; and is that usually spoken of as the operation of craniotomy. I shall have something more to say of it anon.

4. *Cephalotripsy.*—About a quarter of a century ago, an instrument was invented by the younger Baudelocque, which was intended to supersede all those instruments by means of which craniotomy is performed, and it has been much countenanced by almost all the leading continental obstetricians. This formidable instrument is called the cephalotribe, and is used for crushing and diminishing not the presenting portion of the head only, but all the bones of the head and face as well. At first, this instrument was used alone for all the purposes of diminution and extraction; but now a preliminary perforation of the head, as in the ordinary operation for craniotomy, is always, I believe, first effected. The operation of cephalotripsy is, I repeat, very frequently performed abroad, and I have in my museum now an instrument which Professor Scanzoni, of Wurzburg, has himself used in ten or a dozen instances of obstructed labour.

5. *Cæsarean and Sigaultian Operations.*—Where no amount of diminution in the size of the infant would suffice for the extraction of it with safety to the mother, accoucheurs sometimes—but fortunately very, very rarely—try to save the infant's life by having recourse to one or other of these two operations, operations by which, however, the mother's life is almost inevitably sacrificed. We may either make an incision into the abdominal and uterine walls, and bring the child out through that opening; or we may divide the pelvis at the symphysis pubis, and by separating the two sides of the bony pelvis in this way in front, we may produce a dilatation of the

passages sufficient to allow of the transit of the child. A mig improvement on all of these forms of operation is

6. *The Induction of Premature Labour.*—By bringing on lab at a period in utero-gestation when the child is still small eno in bulk, and its head compressible enough in construction, to safely through a contracted pelvis, although sufficiently develo to be able to maintain an independent extra-uterine existence, can obviate nearly all the risks to which both mother and c are exposed in all of the operative procedures of which I have speaking. This operation, which represents, perhaps, the grea improvement that has ever been made in the practice of Midwi was first suggested and performed in England about the middl the last century; and when we know beforehand of the existen some degree of deformity in the pelvis likely to impede the birt a full-grown fœtus, there is no safer, or speedier, or more sati tory way of solving the problem as to how the dangers of deli in such a case are to be avoided, than by bringing on labour six, or eight weeks before the normal period of parturition, simply separating, to some extent, the decidual membranes from interior of the body of the uterus.

When the choice of one or other of these operations lies pla before us, there are few practitioners, I believe, who would no once prefer to adopt one of those forms by which the child ma born with a prospect of safety both to itself and its parent, inst of having recourse to one by which the life of the mother or child must inevitably be sacrificed. But there are some practitio who would go even farther than this. It has lately been m tained in London by Dr. Tyler Smith, one of the most eminent philosophic accoucheurs of the present day, that the operation craniotomy, and its congener cephalotripsy, ought to be condem by obstetricians, discarded altogether from obstetrical practice, never had recourse to under any circumstances. He holds tha all those cases where we have been in the habit of performing niotomy, the difficulty might have been got over by the employm of some of the other and safer forms of operative procedur which I have just referred. I should be glad to think that my friend was justified in maintaining such a strong opinion; for operation of craniotomy, when performed, as I fear it too often without due care and consideration, is truly a terrible and revolt one. No practitioner would dare, five minutes *after* a child was b into the world, to drive an iron instrument into its skull, break the contents of the encephaloid, and thus deliberately mutilate and murder it. We may fairly inquire, therefore, Under what circumstances are we justified—or are there any circumstances which would justify us—in daring to perform such a deadly and destructive operation as craniotomy on an infant five minutes *before* its birth? There may be cases of such a kind that recourse to this operation affords us the only means of escape from a painful and perplexing dilemma. But I greatly fear that recourse has been had to it in these islands far, far more frequently than the exigencies of practice have warranted. Mark the contrast: how carefully our laws guard against the possible unnecessary destruction of human life under all circumstances, and yet how carelessly our obstetric laws guard against the destruction of the life of the fœtus during birth. If a man is evidently guilty of the most dreadful crimes, yet before he is condemned and executed, witnesses are allowed to be called in his defence; barristers are allowed to plead for him; juries and judges sit for hours or days hearing and balancing all the evidence for and against him. Yet the child, immediately before birth, has often been sacrificed and destroyed by craniotomy, with little or no examination as to the absolute necessity of the act—the attendant practitioner acting in the multiple capacity of witness, barrister, jury, judge, ay, and of executioner too. Murder, *ante partum*, is thus often performed by one man on his own undivided responsibility, where, I fear, the infliction of any form of injury on the fœtus is altogether unwarrantable. Nay, more: so callous and case-hardened have obstetricians occasionally become in regard to this dreadful and deadly operation, that they do not scruple to avow that they have recourse to craniotomy in cases where other men would have safely delivered the child by other and safer means. In Dublin, for example, the operation was in former times performed with fearful frequency. Some obstetric schools have been much more in favour of craniotomy than others; for, unfortunately, obstetric, like other practices, are apt to become localised. The practice of our obstetric brethren in the Irish metropolis has been much improved in this respect, although up to a recent enough period it certainly was not. Dr. Collins, indeed, avers that the introduction of the stethoscope into obstetric practice, as a means of diagnosis as to the life or death of the child, has had a great effect in reducing the proportion of cases in which resort was had to the operation of craniotomy in the great Lying-in Hospital of Dublin. But Dr. Collins' own statistics of the practice of the hospital show that the diminution in the number of craniotomy cases consequent on the introduction of the stethoscope was, after all, but very trifling. For if we compare the relative proportion of forceps and craniotomy cases occurring in that institution during the seven years of Dr. Collins' mastership—when the stethoscope was in full use—with the proportion of the same kinds of cases that occurred during the mastership of his father-in-law, Dr. Clarke—ere yet the stethoscope had been applied to obstetric purposes—we obtain a result which you will most easily comprehend and appreciate, if I present it to you in a tabulated form, thus:—

	Forceps.	Craniotomy.
Dr. Clarke . .	1 in 718 cases	1 in 208 cases.
Dr. Collins . .	1 in 617 ,,	1 in 211 ,,

Thus the relative frequency with which the two forms of operation were performed during the respective seven years of the two masterships is seen to be so nearly equal, that it would appear as if the introduction of the stethoscope, and the knowledge which it enables us to obtain as to the vital condition of the infant, had, for a time at least, little or no influence whatever in modifying the practice of the Dublin hospital physicians, and changing the actual relative proportion of cases in which they used respectively craniotomy and the forceps as their means of instrumental delivery. In Dublin formerly, they used, in difficult or obstructed labours, craniotomy nearly three times as frequently as they used the forceps. In most other hospitals, the forceps are used greatly more frequently than craniotomy. Formerly, in the Dublin Hospital, and also some private Scottish and English practitioners did not use the forceps except in cases where the head was detained low down in the pelvic canal, using craniotomy whenever the head was arrested high up. In those cases which we find so frequently occurring in practice, where the head is fixed high up in or even above the brim, they will not apply the forceps, nor will they turn the child, from a most erroneous notion that either of these operations, although it gives the child an almost certain chance of life, is more likely to prove injurious to the mother than the operation of craniotomy. But according to Dr. Churchill's elaborate and valuable statistics, after craniotomy the maternal mortality is three or four times greater than that which follows the use of the forceps. I was told by an esteemed friend and eminent accoucheur in Dublin, that when a student, he was present at a lecture when a gentleman took up a pair of forceps in one hand, and the craniotomy instruments in the other, and called upon his students to witness what an easy operation craniotomy was, as compared to the difficult process of extracting a child by means of an instrument so formidable as the forceps! Not in Ireland only, however, but in our own country, and in England as well, craniotomy has hitherto, I believe, been far too frequently and unnecessarily performed; and Dr. Tyler Smith, in my opinion, does a great service to humanity in pointing out its dangers, and in reminding us by what other means we may effect a safe delivery instead.

But much as I deprecate the too frequent or unnecessary destruction of the life of the child as a means of terminating a difficult labour; and, much as I detest the performance of such an operation, I cannot concur with Dr. Smith in his unconditional and uncompromising condemnation of the operation; nor can I think it aught else than a fond Utopian dream to suppose that craniotomy in every form may be for ever deleted from the list of obstetrical operations. I should hold myself guilty of fœticide were I to destroy the life of a child in utero by breaking down its skull, with a view to facilitate its delivery, if I believed that that child could be extracted alive by any form of operation that afforded an equal hope of safety to the mother, as by the forceps or by turning. But experience has taught me, as it has taught others, that cases may, and do, sometimes, however seldom, come before us, where we are shut up to the performance of this operation; and in order that you may be made fully alive to the importance and necessity of acquainting yourselves with all the details of it, you must allow me now briefly to indicate to you some of the cases and conditions in which you may be called upon to have recourse, however unwillingly, to the operation of craniotomy, or its substitute, cranioclasm.

CONDITIONS JUSTIFYING THE OPERATIVE DIMINUTION OF THE FŒTAL HEAD.

I. *When the Child is Dead.*

You may be called to deliver a patient in whom obstructed labour has been going on for so many hours that the child has at length succumbed under the contractile efforts made by the uterus for its expulsion, or the obstetric procedures that have been put in practice for its extraction; and in such a case it may be both easier for you, and safer for your patient, to break down the skull of the already dead infant than to persevere in attempting to effect delivery by any other operative measures. In obstructed and protracted labours the child in a large number of cases dies betimes under the compression of the head, body, and cord, to which it is subjected. During the seven years that Dr. Collins was Physician to the Dublin Lying-in Hospital, 1 in every 3 of the children was born dead among the mothers whose labours were prolonged from 25 to 36 hours; 1 in every 2 when the labour was from 37 to 46 hours in duration. Out of 32 children born in labours extended from 47 to 60 hours, 21 were dead, or 2 in every 3; and out of 15 labours allowed to run on beyond 60 hours, 11 were born dead, or 4 out of every 5—a dreadful rate of infantile mortality from protracted parturition. Let me, however, remark in passing, the maternal danger and mortality increase also with the increased duration of the labour with frightful rapidity, when the subject is examined on the large scale. Among the 130 cases of labour protracted beyond 36 hours, which occurred during Dr. Collins' mastership, 24, or 1 in every 6, of the mothers died. But, I repeat, supposing you found in an obstructed labour that the child was already dead, the question as to the proper line of practice to be pursued then, resolves itself simply into this: By what means can the labour be terminated most speedily and safely? Craniotomy, indeed, as it has usually been performed hitherto, is by no means always a very expeditious operation; and statistics abundantly show that it is far from being a safe one—particularly when too great delay has been allowed to occur before its performance. In fact, the danger to the mother attendant upon craniotomy, is, like the danger attendant upon delivery by the forceps and turning, and—to speak in more generalised terms—like the danger attendant upon all tedious labours, regulated in a great measure by the previous degree of duration of the process of parturition. Among 76 cases of craniotomy performed by Dr. Collins when the labour at the time of operative delivery was under 24 hours, only 1 out of 19 mothers died; when the previous duration of the labour varied from 24 to 48 hours, craniotomy proved fatal to the mothers in 1 out of every 8; but when the labour had been prolonged already beyond 48 hours, it was fatal in 1 out of every 3 cases. But the operation of cranioclasm, which I venture to propose to substitute for it, will be found, I believe, in many cases where the child is already dead, to be at once more simple in its performance for the practitioner and more safe for the patient than extraction either by means of turning or of the long forceps.

II. *Where the Long Forceps have been tried and have failed.*

You may meet with cases in practice where the head of the child is so large or so strongly ossified, or where the brim, cavity, or outlet of the pelvis is so contracted that you could not succeed in dragging the former through the latter by means of the long forceps with any reasonable degree of force. I say reasonable, because in such a case you might possibly succeed in effecting the extraction of the head, but only by exerting such an amount of force as would dangerously damage and destroy the soft parts of the maternal passages, and almost inevitably cause the death of the infant by compression of the brain. In such a case it will be your duty to spare the mother the dangers of such a perilous forceps operation—even although the life of the child be sacrificed by art, a few hours before it would perish inevitably, and with greatly increased danger to the mother, under the prolonged struggles of nature—by having recourse to the operative reduction of the child's head, provided always that it be a case

III. *Where Turning is impossible.*

In many cases where it would be dangerous to the mother to effect the delivery of a living child by the use of forceps, you may attain your object by having recourse to the operation of version—as has been abundantly proved by the results of experience. The comparative facility and safety, indeed, of version, as contrasted with craniotomy, form one of the grand arguments on which the proposal to abridge or even abolish this latter operation from practice has been founded. But all cases of labour, obstructed from defective pelvic space, are not, of course, adapted for turning. The graver varieties of pelvic deformity arising from malacosteon and rickets, and, indeed, all other morbid contractions of the pelvic canal in which any of the diameters are diminished beyond 2½ or 2¾ inches, forbid all idea of the operative delivery of a living child at the full time either by turning or by the forceps. Where the contraction is placed at the outlet, as in funnel-shaped pelves, you can only try the forceps; you must not dream of having recourse to turning; for the operation of version is only to be thought of in those cases of obstructed labour where the head is lodged above, or in, the brim of the pelvis, in consequence of some morbid contraction of that brim, and does not apply to cases where the head has already quite passed down into the pelvic cavity. All morbid contractions, however, of the brim are not suited for extraction by turning. If t pelvic brim be absolutely small in all its dimensions, and all diameters are consequently shorter than natural—if, in other wor the pelvic brim and perhaps the whole pelvis is of the form a type usually described as the "*pelvis æquabiliter justo minor*,"—a attempt at delivery by turning is utterly contra-indicated and f bidden, and will fail; and so probably will the long forceps al The same remark probably equally applies to the ovate or obliq types of pelvic deformity. In fact, the kind of contracted br chiefly justifying and indicating turning—(and it is certainly by the most common kind of deformed brim met with in practice)– that in which its conjugate diameter is diminished half-an-inch, inch, or even more, by the projection forward of the promontory the sacrum behind, or by the flattening and twisting of the pul bones in front; while the opposite or transverse diameters rem unaffected, or even, as sometimes happens, are increased in leng But again, all cases of labour obstructed from slight or consideral projection forward of the promontory of the sacrum are not adapt for delivery by turning. For, unfortunately, rare cases do from ti to time occur where it is impossible to turn the child at all, where the operation can only be persevered in at the imminent ri of rupturing or lacerating the interior of the uterus, or otherwi injuring the maternal structures. In the cases I refer to, labo has usually been going on for a lengthened period before the arri of the practitioner, the liquor amnii has been long discharged, a the uterus is contracted so firmly and adapted so accurately arou the fœtus, that the simple introduction of the hand into the cavi of that organ is not unattended with difficulty and danger. Ev in the deepest sleep induced by chloroform, this state of persist tonic contraction of the uterine walls still occasionally, thou fortunately very seldom, presents an obstacle to the operation turning; and in such rare cases you afford your patient the best a almost the only chance of safety by diminishing the size of the fœ head, so as to permit of its passage through the brim. You m tell me that the difficulties in such cases should be met by t induction rather of premature labour. But there are certain case

IV. *Where there has been no Opportunity of inducing Premature Labour.*

No practitioner of the present day, who is consulted by pregnant patient with a pelvis so contracted as to render t parturition of a full-developed fœtus a matter of danger and difficulty, would hesitate, I should hope, to induce premature labour at an appropriate period; rather than allow that patient to carry her child to the full time, and then deliver her by such an operation as that of craniotomy, or even by the forceps, or turning. But in practice it sometimes happens that we may be prevented from doing what is right, and the responsibility of the matter is taken out of our hands—

1st. *Because of the Objections and Obstructions put by Patients to the Operation.*—It may seem almost incredible, but it is nevertheless most true, that there are many persons—more particularly in the lower classes of society—who have an insuperable though absurd objection to any kind of interference with what they consider to be the course of nature. So strong is this pernicious prejudice, that you will sometimes meet with a patient, particularly in hospital and dispensary practice, who has been once or oftener subjected to all the pains and all the perils of a deadly form of instrumental delivery, choosing rather to run these same risks over again than to allow you to save her child and spare herself much unnecessary suffering and sorrow by bringing on labour two, three, or more weeks before the normal period of parturition. In such a case you may have no alternative, when the full term of utero-gestation is accomplished, but be obliged to deliver the child by reducing artificially the size of its head at the time of parturition. Again, we may have no opportunity of inducing premature labour—

2d. *Because it is the Patient's First Confinement.*—When we have once found it necessary to have recourse to craniotomy in any female, we may save her the dangers of that operation when she again becomes pregnant by bringing on her second labour some weeks before the full term of utero-gestation. But when we are called to deliver such a patient in her first confinement, matters are already too far advanced, and from our having had no means of knowing beforehand of the existence of any preternatural smallness, contraction, or deformity in the pelvis, we have lost the opportunity of affording her the happier and safer chances offered by this form of operation, and may now have no resource but the more fatal and formidable operation of craniotomy.

Under these circumstances, then, and in cases such as these, where no opportunity has been afforded us of inducing premature labour, and where it is found impossible to deliver the child by turning, or with the long forceps, we may occasionally find ourselves obliged to have recourse to the alternative measure of diminis the size of the fœtal head. This operation, I again repeat, you very rarely be justified in performing on a living child; nor you have occasion to perform it very frequently when the chil dead; although you will then have less hesitation in adoptin If it must and ought to be performed, the question comes to be what means can we reduce the size of the fœtal head with the hope for the mother of a safe and speedy delivery? In most o leading continental medical schools it seems to be the fashio present to deliver in such cases by the operation of

CEPHALOTRIPSY.

This operation is effected by means of the cephalotribe, so the forms of which I have already shown you. All of them, the smallest and simplest, are open to the objection of being in ments which are excessively cumbersome, complex, and by no m easy of application. In a pelvis with small diameters, the diffic of introducing such large thick blades by the sides of the head be very great; and when they are at length properly adjusted, effect of their approximation by the appended screws or clamps be the lateral compression of the fœtal head in the transverse di tion where diminution is least required, and the consequent press and distension of it in the other direction, the conjugate— diameter which, as being the diameter most generally contrac admits less perfectly and less safely than any other of such dis sion and pressure. It has been argued that the head, when pressed by the cephalotribe, should and does elongate princip downwards between the blades of the instrument; and no d such is the fact. But this result is only attained as a secondary indirect consequence of the mechanical compression and flatten out of the head and face of the child in the conjugate diameter being admissible on account of the contraction of that diameter: the soft tissues lining that diameter are necessarily crushed and pressed to produce this downward elongation of the fœtal crani In experiments with cephalotripsy on the dead child, and deform bony pelvis, I have seen the head, when flattened by the cepha tribe, project to such a degree over the symphysis pubis in the tracted conjugate diameter, as to render its traction downwar almost a matter of impossibility. These circumstances have ma the broken ends of the compressed bones project through the sca and injure the soft parts of the mother; but more frequently the have made the instrument slip when, after crushing the head, it was used as a tractor or crochet to drag the compressed head through the contracted brim. I attempted, in one case of deformed brim in the living subject, to perform cephalotripsy by means of Kilian's cephalotribe (see Fig. 85), and I hardly think it likely that

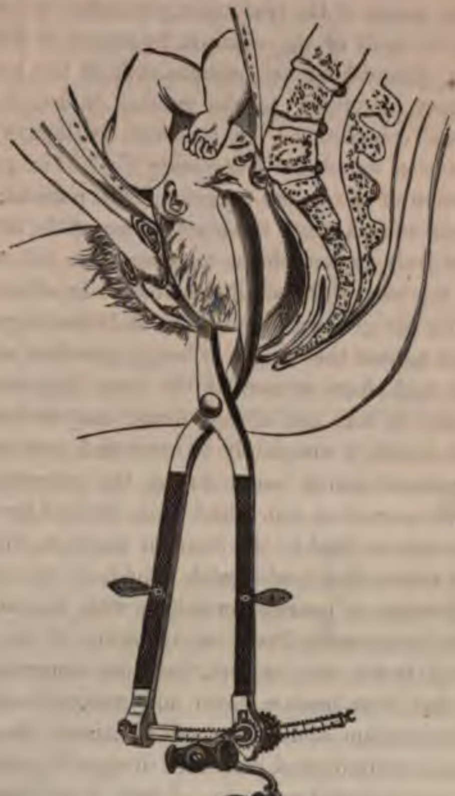


Fig. 85.

I shall ever be induced again to try it; for, after having applied the instrument—not without considerable difficulty—and compressed the fœtal head, when I came to use tractile force, the cephalotribe lost its hold and slipped off the head, so that I had to terminate the labour by means of the old operation of

Fig. 85. Kilian's cephalotribe, shown as applied to the fœtal head in a pelvis contracted at the brim.—(From Kilian's *Obstetrical Atlas.*)

CRANIOTOMY.

This operation is usually divided into three stages of—1, Pe
tion; 2. Reduction or removal of some part of the cranial b
and 3, Extraction. In performing craniotomy as it has been hi
effected, the accoucheur, after opening the skull and breaking
the brain by means of the perforator, proceeded to remove the
composing the vault of the cranium by means of different ki
forceps, etc., diminishing the osseous arch of the head to a g
or less degree, according to the greater or less degree of
deformity and contraction. In this way, in slighter cases me
large perforation was deemed necessary; while in graver case
greater portion of the superior parts of the parietal, occipital
frontal bones, entering into the composition of the arch of the
were successively broken down and removed, till sometimes
more than the base of the skull remained. In effecting this p
the operation the greatest care had to be taken to guard the n
nal passages against the danger of being scratched and lacerat
the spiculæ and sharp corners of the bony fragments during
removal; and it was not always found easy to keep the sca
intact as to enable it completely to cover and protect the rema
of the roughened cranial bones during the extraction of the
head. This extraction too, which was effected by means of
hooks or crotchets fixed in the foramen magnum, the orbits, or
other part where they could catch a hold, or by means of va
kinds of forceps or guarded crotchets with toothed and furn
blades, was occasionally itself an operation of no little diffic
For, after all, it was only, at best, the most compressible part of
head that had been broken down and removed—viz. the vaul
arch of the cranium—and there still remained the hard, solid,
yielding, and undiminished base to be dragged by main force thr
the contracted maternal passages. I hold in my hand a prepara
which my predecessor, Dr. Hamilton, used to exhibit to his cla
a trophy of one of his most trying operative efforts. (See Fig.
It is the base of a fœtal skull, the vault of which he had enti
broken down and taken away—even to the roof of the orbits
front, and the occipital protuberance behind; but, as you can
ceive, the whole extent of the firm, dense, incompressible base
remains totally unreduced in size. Dr. Hamilton used to rel
here most circumstantially, what he has published in his *Pract*
Observations on Midwifery, that the extraction of this fœtal he

pt him at work for four weary hours; and when at length the eration was completed, and the woman fairly delivered, he was so hausted that he—the operator—had to be wrapped up in blankets, and carried home in a sedan-chair. If the operator was so fatigued, judge of the chances for a happy recovery of the poor woman who was subjected to this ordeal, without even that amount of relief which now-a-days chloroform enables us to afford to our more fortunate patients. Instead of having recourse to this prolonged and perilous process in difficult cases for the perforation and extraction of the child, I believe we will in most instances where we reduce the child's head—whether the obstruction be slight or great—succeed in effecting our object more easily and safely by means of the simpler and shorter operation which I have proposed to designate

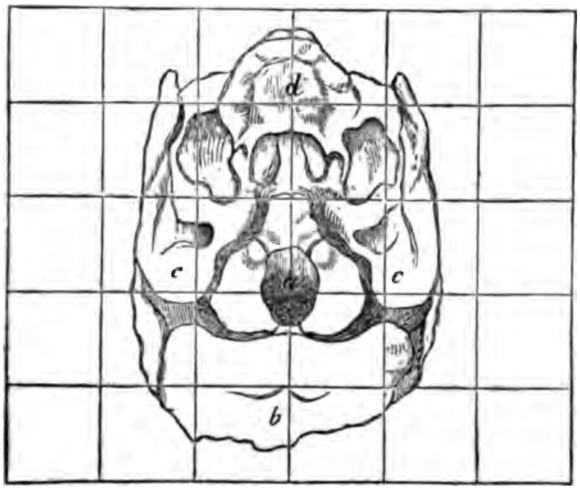


Fig. 86.

Cranioclasm.

As in the case of craniotomy, so in the case of cranioclasm, the operation may be divided into three stages—viz. 1, Perforation of the head; 2, Comminution of the bones of the skull; and 3, Extraction of the head and body of the child. The necessary armamen-

Fig. 86. Sketch of the base of a fœtal skull reduced in the operation of craniotomy by Dr. Hamilton. The drawing is one-half the size of the preparation, which is represented as seen from below. *a*, foramen magnum; *b*, occipital protuberance; *c c*, temporal bone; *d*, hard palate.

tarium for attaining these objects is but very limited ; and t greater the diminution that we can thus effect in the number of o obstetrical instruments the better. All that is required is, 1st, Perforator (see Fig. 87), to open the head ; and 2d, a Cranioclast (s Fig. 88), to break down the skull and extract the head through t pelvis.

Mode of Operating.

1. *Perforation of the Head.*—This constitutes the first stage the operation, and may be effected in the same manner, accordi to the same rules, and by means of t same instrument, which have hithe been adopted in the old operation craniotomy. I show you the perforat which I have been in the habit of usi and recommending for many years pa It was first made in Edinburgh, now so sixteen or eighteen years ago. It prese this advantage over all the modificatio of Smellie's perforator, that the blades the instrument can be separated by t simple approximation of the handles ; a as this can be effected with one ha while the other hand guides and guar the point of the instrument, every kind assistance from another practitioner, from the nurse, can be dispensed with. compared with Naegele's perforator, which it is a modification, it has, you will observe, this improv ment—that the ends of the handles are kept apart during the intr duction of the point through the skull by means of a hinged b which allows of the easy approximation of the handles, and cons quent separation of the blades, without rendering it necessary f the operator to stop, after the instrument has pierced the skull, unclasp the straight, solid bar which, in Naegele's instrument, used to keep asunder the extremities of the handles. In addition this change in the bar, I have usually had this perforator made its cutting edges or sides so as to leave an angled indentation the base of each of these sides. These lateral indentations tend prevent the point and edges slipping out of the skull when tl

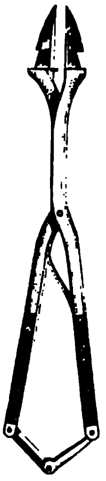


Fig. 87.

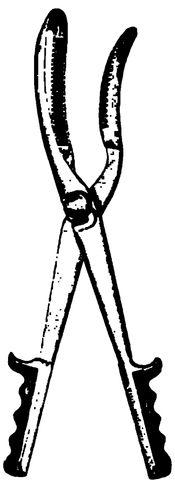


Fig. 88.

Fig. 87. The Perforator.

Fig. 88. The Cranioclast.

instrument is opened, an accident which has sometimes happened under the use of the common form of perforator, or perforating scissors. So far, however, as the mere perforation is concerned, there is no real difference between craniotomy and cranioclasm. It is in the performance of the second part of the two operations that the essential distinction lies—in the manner, namely, in which we seek to effect the comminution of the bones of the skull.

After that *first* step—perforation—has been thoroughy accomplished in the way described, the next stage in the operation is

2. *The Comminution of the Bones of the Skull.*—In the ordinary operation of craniotomy, the diminution in the size of the head is effected by means of various kinds of forceps, scissors, osteotomists, etc., which are passed between the scalp and the bone, and used for breaking down the latter and removing the fragments piece by piece, while the vaginal passages of the mother are as carefully as possible protected from injury by the passage along them of the ragged and broken bones. In reducing and comminuting the bones of the cranium, the cranioclast acts in quite a different way. The cranioclast is of the usual length and weight of the guarded craniotomy forceps employed in British practice, being about thirteen inches long,—five and a half inches from the tip to the middle of the button-joint; its outer blade at its broadest point, one inch, and its inner blade, of course, somewhat narrower; and the exterior of the length of the fenestra of the outer blade, about three inches. It is a kind of forceps with a movable button-joint, resembling the joint in Brünninghausen's midwifery forceps. This kind of joint allows the instrument to be introduced either, as you think fit, in a fixed form, like a pair of scissors, or each blade separately, like the common midwifery forceps. In other words, it permits, I repeat, the blades either to be separately applied, though when the instrument is closed and in action, it is so secure as to hold almost as firmly as a scissors-joint; or it allows it to be used from the first as if it were a forceps with a fixed joint, and with the two blades introduced simultaneously. In fact, in my two first cases of cranioclasm, I used the scissor-jointed craniotomy forceps of Dr. Murphy, and figured by him in his *Lectures on Parturition* (p. 234). He praises it as a form of craniotomy forceps by which the cranial bones "can be very firmly held without being broken." I think it recommendable, on the contrary, because these bones can be very readily broken by it, as well as very firmly held by it. The instrument which I show you is modified, so as to attain, if possible, these objects more perfectly.

Of the blades, the inner—or smaller one—is solid, and convex, and serrated on the side by which it fits into the concavity of the other larger fenestrated blade. They have both a slight curve to enable them to be adapted to the curved form of the bones of the cranial vault. The concave surface of the outer double, or fenestrated blade, and the convex surface of the inner single, or solid blade, are serrated with relative transverse ridges and grooves, so as to make the hold of the instrument as perfect as possible without the fear of lacerating the included tissues. In using the instrument, the smaller solid blade is first introduced through the opening made by the perforator in the vault of the skull very deeply into the interior, and then the larger fenestrated blade being passed over the occiput outside the scalp, the two are made to lock, after they have been pushed in this position as far down over the occiput as they can be made to go; and then by a slightly twisting movement first on one side and then on the other, the bone is at once and easily broken across, or dislocated, behind the foramen magnum. This may sometimes be all that is required. In other cases it will be necessary to pass round the blades of the instrument over the parietal bones, so as to loosen and comminute in the same way the temporal bones; or it may be found advisable to break away the frontal bones from

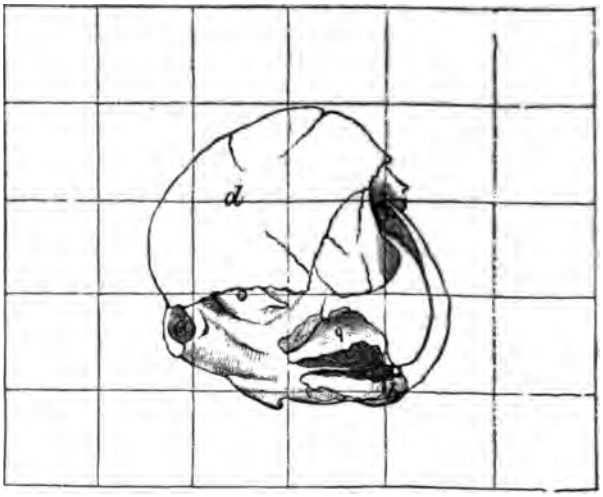


Fig. 89.

Fig. 89. Sketch of the bones of the skull of an infant delivered by means of cranioclasm. (Half the natural size.) *a*, Foramen magnum; *b*, *q*, the roofs of the orbits; *c*, anterior fontanelle; *d*, parietal bones.

their base, or from connection with the sphenoid. And that such separation of the bones at the base of the skull can take place is abundantly shown by the preparation which I show you of the skull of a fœtus delivered by means of cranioclasm. (See Fig. 89.) In bringing away this preparation, as the child had to be afterwards shown to the mother, and it was thus impossible for us to remove the whôle skull, the encephalic portion of it was removed from the facial portion at the level of the root of the nose, and the specimen is so far not so complete as that from the Hamilton collection with which I beg you to compare it (see Fig. 90). It is sufficiently perfect, however, to show the manner in which the base of the skull has been broken down and reduced to a soft and compressible mass.

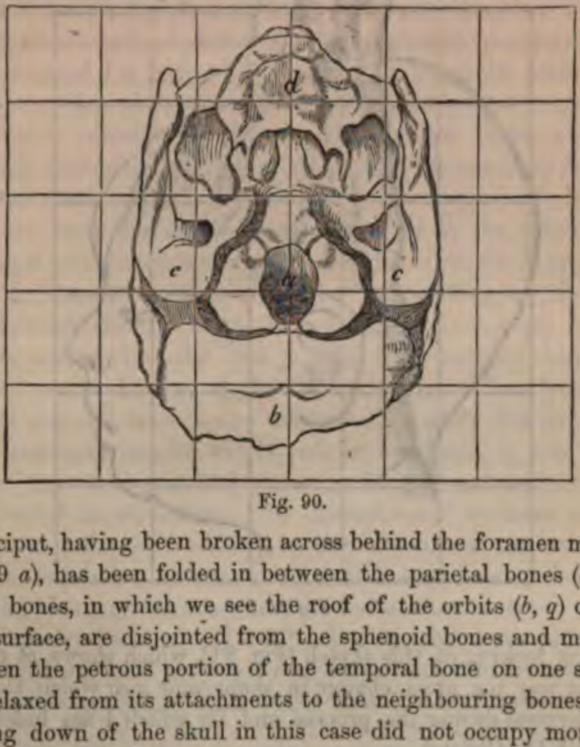


Fig. 90.

The occiput, having been broken across behind the foramen magnum (Fig. 89 *a*), has been folded in between the parietal bones (*d*); the frontal bones, in which we see the roof of the orbits (*b*, *q*) on their lower surface, are disjointed from the sphenoid bones and movable; and even the petrous portion of the temporal bone on one side has been relaxed from its attachments to the neighbouring bones. The breaking down of the skull in this case did not occupy more than three or four minutes, and the effects of that short operation con-

Fig. 90. Sketch of the base of a fœtal skull reduced in the operation of craniotomy by Dr. Hamilton. The drawing is one-half the size of the preparation, which is represented as seen from below. *a*, Foramen magnum; *b*, occipital bone forming still, though broken off above, a continuous portion below of the solid basis of the skull; *c c*, temporal bone; *d*, hard palate.

trasts very strikingly with the result obtained by the older proces exemplified by the preparation of Dr. Hamilton's celebrated ca and where three or four hours were required to produce a much le perfect reduction of the fœtal head. Again, you may obtain an id of the extent to which the size of the base of the skull may be, a has been, reduced by means of the cranioclast, by comparing t size of this cast of a child's head crushed and collapsed by crani clasm, as compared with another cast of the same head after it h been stuffed out to its original dimensions; or better still, perha

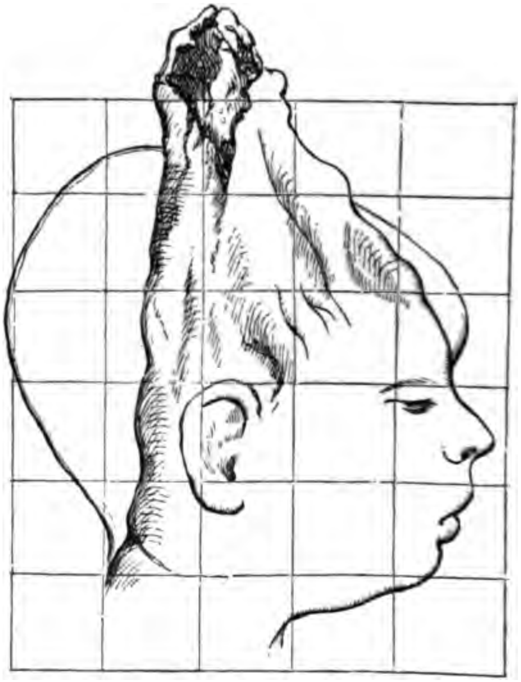


Fig. 91.

by merely looking at this sketch (Fig. 91), which shows at once i the same way the great change in shape and size which the hea has undergone during the process, and for which I am indebted t my friend Dr. Cleland.

It was by accident, more than by reasoning on the matter, tha I was in the first instance led to perceive that great collapsing effec

Fig. 91. Sketch of casts of the crushed head of an infant delivered by means of cranioclasm, and of the same head in a re-distended state. (Half the natural size.)

upon the fœtal head which can be so readily produced by cranioclasm. In October 1858, I was requested by Dr. Snodgrass and Dr. Burns to see with them a lame and deformed woman who had been a considerable time in labour with her first child without the head ever entering the contracted pelvic brim. As the umbilical cord, which was prolapsed, had ceased to beat by the time we met in consultation, and there was no prospect whatever of nature ever accomplishing the delivery, in consequence of the deformed condition of the pelvis, it was agreed to have recourse at once to craniotomy. I effected perforation in the usual manner, and then I used a pair of duck-billed forceps—in other words, the craniotomy forceps of Dr. Murphy—to break down the skull, some pieces of which I broke off and removed, but less perfectly I thought than I would have done in such a case of deformity had I had with me the common bone forceps of Dr. Lyon. Having thus reduced the cranium, the patient was allowed to remain undisturbed for several hours, when, according to agreement, I again went to see her, taking with me a variety of instruments with the intention of further breaking down the fœtal head. To the astonishment, however, of all of us, we found the head already sunk very low down in the cavity of the pelvis, and I extracted it easily. On examination, the happy effects which the uterine contractions had had in expelling the child were soon explained, for the occiput was found to have been disunited from its articulation with the parietal and temporal bones, and fractured across the base of the skull a couple of lines behind the foramen magnum, in such sort that it folded easily into the cranial cavity, and thus became overlapped on each side by the parietal bones. The child was $20\frac{3}{8}$ inches in length, and measured $11\frac{5}{8}$ inches round the shoulders. The diminution of the head was such that, in the collapsed condition, its circumference at the level of the chin was $10\frac{7}{8}$ inches, at the nose $11\frac{1}{8}$ inches, and round vertex and chin $11\frac{7}{8}$ inches; whereas, when the bones were restored to their proper relative position, and the head to its normal dimensions, the circumference round nose and occiput was $13\frac{3}{4}$ inches, round forehead and occiput $13\frac{3}{8}$ inches, and round vertex and chin $13\frac{5}{8}$ inches.

In the case whose history I have just stated to you, the base of the skull was, as I have already mentioned, fractured and diminished accidentally, and without my being aware of what had happened; and it was only from observing the unusual facility with which the labour was afterwards terminated, in a patient with confessedly a very deformed and contracted pelvic brim, that my attention was aroused to the manner in which the diminution in the size of the skull had been brought about. On first considering and afterwards experimenting on the subject, it appeared to me that probably the beaked duck-billed forceps which I had chanced to employ broke up the walls of the skull, and more especially its base, upon the principle which nature employs in the construction of the beak of the cormorant and other birds, which have, according to some observers, the power of cracking shell-fish and feeding upon their contents. In these birds the sharp-nailed projection of the upper mandible of the bill over the lower mandible, and the strong muscular apparatus attached to them, enables the beak to break shells of considerable strength. But a few experiments convinced me that in breaking and collapsing the fœtal skull in the way effected in the case alluded to, a different principle was had recourse to. For I found that the fracturing and comminution did not take place from the action of the beak of the forceps or cranioclast, but chiefly from the subsequent semi-lateral movement of the instrument after it had once laid firm hold of the cranium. In performing the operation, you have, in fact, two leading points to attend to, to which I have already alluded, but these I beg here to repeat. First, In seizing at any point or points the sides or walls of the cranium with the cranioclast, you must always carefully pass the instrument as far down as possible towards the bases of the skull, in order to make the subsequent fracture and comminution as complete as may be. Second, after shutting firmly the instrument, and thus grasping the selected portion of cranium, you must give the instrument a partial slight twisting, or lateral movement, first on one side and then on the other, so as to fracture and loosen the portion of the cranial parietes which you have laid hold of. The cranial, like the other bones of the infant, are far more flexible than the bones of the adult, and under the double lateral or twisting motion of which I speak, they partly fracture and partly soften and comminute. The fracturing and fissuring, which results readily, as I have already stated and shown you, runs across the more solid basis of the skull. Another effect, as we have also already seen, usually attends the first grasp and stroke of the cranioclast, as we seize and act on the occipital region of the child's head with it—viz. it breaks across the occipital bone a line or two behind the foramen magnum, and further dislocates it along the course of the lamboidal suture on each side. In many cases the reduction of size of the head effected by this single action on the occipital region may prove all that is required. If more reduction is necessary, the sides of the cranium, including the parietal and temporal bones, may be reduced and comminuted by two additional strokes of the instrument; and if the obstruction is greater, the frontal bones may be also fractured and fissured so as also to collapse readily, as some of you saw done a short time ago in the Maternity Hospital, in the case of which this is a preparation and drawing, displaying the degree of reduction which was effected in the head of the child by this operation, in the course of a very few minutes. (See Fig. 92.) The obstruction in this instance was so great that repeated efforts with the long forceps proved of no avail whatever in bringing the head through the brim, but it readily passed when collapsed by cranioclasm. Perhaps the instrument would even more perfectly than at present fracture the bones of the base of the skull and face in cases of great deformity, if the outer blade were, either by the elongation of the button-slit, or by the presence of a second slit in the stem,

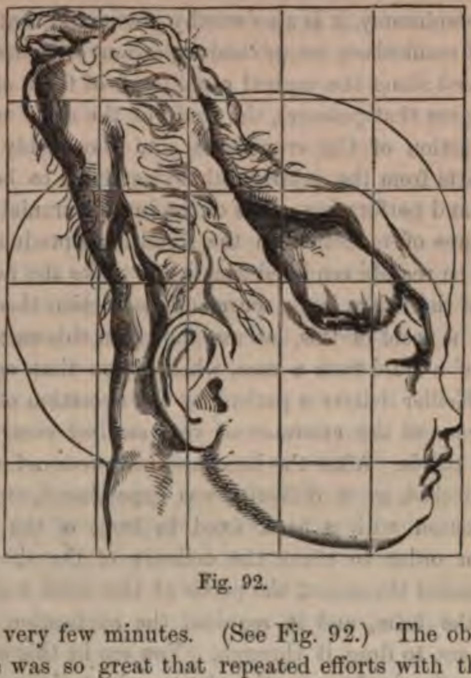


Fig. 92.

Fig. 92. Sketch of the head of a child delivered by means of cranioclasm. The size of the normal head is shown in outline, in order that the degree of diminution which is effected during the operation, and the change of form produced by it, may at once be more easily seen and understood.

allowed when requisite to project about half-an-inch or so beyond the point of the inner blade.

After the walls of the cranium are fractured and fissured by cranioclasm, these walls do not any longer present the resistance and firmness of bone, but have more the consistence of soft tissue. They become at least quite flexible and plastic in all those regions which have been acted on by the cranioclast, and these artificially supple and pliant walls of the encephalon now readily fold together and collapse, either under the expulsive pressure of the labour pains, or under the extractive efforts of the accoucheur. Besides, in contrast with craniotomy, it is also worthy of remark, that while in the operation of cranioclasm no successive portions of sharp bone require to be removed along the vaginal canal (each of them apt to lacerate to some degree that passage), the scalp of the child remains entire under the action of the cranioclast, and thoroughly protects the maternal parts from the injuries otherwise liable to be inflicted by the ragged and perforating edges of the broken cranial bones.

The degree of reduction in the fœtal head produced by cranioclasm, may be readily rendered such as to make the head or cranial extremity of the infant less a source of obstruction than its shoulder or trunk. In proof of this, let me show you this cast of the head and trunk of a child from a case, where, some time ago, I saw my friend Dr. Keiller deliver a patient by the operation of cranioclasm, in consequence of the existence of very marked contraction of the brim of the pelvis. After the head had been reduced and extracted by the cranioclast, great difficulty was experienced, and ultimately, in fact, traction with a hook fixed in front of the arm-pit, was necessary in order to effect the delivery of the shoulders; after these had passed the outlet, the pelvis of the child was found to be caught at the brim, and it required the application of very considerable force to drag it through. You see in this cast the mark of the extracting-hook upon the chest, and, at the same time, the very collapsed state of the cranium. The child was 21 inches in length, and measured 13 inches round the shoulders, and 10¾ inches round the pelvis. The head in its collapsed state measured round the forehead and occiput, 10¾ inches; round the nose and occiput, 11¼ inches; round vertex and chin, 12 inches. The left parietal and temporal bones were very much broken down, and all the other bones of the skull were felt to be loosened from their fellows.

As another illustration of the degree of reduction easily produced in the fœtal head by cranioclasm, let me direct your attention to these casts of another case, and to some measurements connected with it. They are casts of the head—one in a crushed, and the other in a re-distended state—of the same infant, the bones of whose skull I have already shown you (see Fig. 89) when describing the manner of reducing the size of the head, and pointing out the degree of diminution that is effected. About a month after I had seen, with my friend Dr. Burns, the case which I have already mentioned, as having first suggested the operation of cranioclasm, I was asked by him, when leaving the lecture-room here at twelve o'clock, to see a patient who had been delivered once before of a premature still-born child. She was again in labour, and at the full time. On this occasion labour had begun about three o'clock A.M., and Dr. Burns had been with her from six A.M. till the time when I arrived. She had had strong pains, which were beginning to diminish in force. The os uteri had long been opened, but since about eight A.M. the head had made no progress, in consequence of the projection forward of the promontory of the sacrum, which diminished the diameter apparently to about three inches. The sounds of the fœtal heart were no longer audible. Dr. Burns and I decided upon leaving the patient for two hours in charge of my nephew, in order that we might have an opportunity of judging with still greater certainty as to the degree of obstruction to labour. Having returned at two P.M., and found the head *in statu quo*, after chloroforming the patient, I perforated the fœtal cranium, and then, having broken down the skull with the cranioclast, applied at three several places, I pulled down the head with the same instrument. After the birth of the head considerable difficulty was experienced, as in Dr. Keiller's case, in extracting the shoulders.

The head, which was very much ossified, presented the following respective measurements in a collapsed condition, and when stuffed out to its normal or previous size :—

	In the collapsed condition.	When stuffed out.
Bi-parietal diameter . . .	2⅛ inches .	4 inches.
Occipito-frontal	3⅛ ,, . .	4⅞ ,,
From chin to vertex . . .	3½ ,, . .	5⅛ ,,
From nose to occiput . .	3¾ ,, . .	4¾ ,,
Round forehead and occiput .	10⅛ ,, . .	12 ,,
Round nose and occiput . .	11⅝ ,, . .	12⅛ ,,
Round chin and vertex . .	11⅛ ,, . .	14 ,,

The shoulders presented a circumference (uncompressed) of 13 inches, and a breadth of 5⅝ inches. The breadth of the child's pelvis was 3⅝ inches.

3. *Extraction of the Child.*—The artificial extraction of the child is not necessary in all cases of cranioclasm, in the same way as it is not necessary in all cases of craniotomy; for occasionally, after the cranium is reduced in size by either operation, Nature is by herself quite able to expel, by the normal uterine contractions, the diminished fœtal head through the contracted maternal canals. In some few and exceptional cases you may thus trust the birth of the mutilated child to the expulsive efforts of the uterus, and not force its removal by the extractive efforts of art. You may allow Nature, for instance, thus to finish the delivery, when the pains are sufficiently strong of themselves to effect the speedy expulsion of the child; or in pelves so contracted that the first steps of the operation are performed easily and before any local irritation has been set up by the length or severity of the labour; or possibly, you may trust, for a period at least, to the possible normal expulsion of the child in cases of cranioclasm, where the mother appears so thoroughly exhausted for the time being, as to be incapable of safely sustaining any further efforts for her delivery. But in the vast majority of cases you will be called upon to attempt immediate extraction, particularly if you have not begun to operate—as will be generally the fact—till the labour has already endured for a considerable length of time, and the patient's constitution already shows, more or less markedly, some signs of distress and suffering. For the purpose of artificially extracting the reduced fœtal head, a great variety of blunt hooks and of toothed and guarded forceps of every kind have been invented and employed. But if you have used a cranioclast for the fracturing and fissuring of the cranial bones, you will find that you can effect the extraction of the fœtal head with the same instrument; perhaps without, in some instances, even shifting it from its position over the occipital bone, where, in most cases, you first apply it. The head is so reduced in size and so comminuted and compressible, that it can easily be dragged through a narrow brim; and in such a case the chief obstruction to the termination of the labour may come to be presented by the shoulders of the infant, as happened in two of the cases I have spoken of. The cranioclast is itself, I say, the most efficient crotchet which you can use. In experimenting with it, I have rarely or never seen it slip when a sufficient hold was taken; and the previous comminuted state of the cranial walls does not prevent them serving as a sufficient and safe medium of prehension and traction. In some cases the sides of the skull may afford a better and more secure hold than the occipital region of the head.

COMPARISON OF CRANIOCLASM WITH CEPHALOTRIPSY AND CRANIOTOMY.

Such, then, is the operation which I believe future experience will find to be the best and the simplest for those cases of labour in which it becomes necessary for the accoucheur to break down the fœtal head, or destroy an infant's life to save the life of the mother. I am sure you will find it an operation preferable to either craniotomy or cephalotripsy. It is perhaps needless to contrast it with cephalotripsy,—an operation which seems to have few or no advocates in this country.[1] But let me merely remark in passing, that the operation of cranioclasm requires no such formidable machinery as the operation of cephalotripsy; the cranioclast can be safely worked in much smaller spaces than the cephalotribe, and is not, like it, limited in its introduction and use t othe transverse diameter alone of the pelvis; in reducing the head with the cranioclast, we are not, as with the cephalotribe, under the necessity of making the parts forming the shorter conjugate diameter of the brim fulcra or resistant points, by which the comminution of the head is indirectly and dangerously produced; nor, in the process of extraction, do we need in cranioclasm to subject these same points to similar severe pressure with this same view. Over craniotomy, as usually performed by British accoucheurs, cranioclasm appears to me to have various important advantages. 1. Cranioclasm is—particularly in cases of any considerable deformity and difficulty—far speedier and simpler in its performance than craniotomy. 2. It saves the maternal canal from the danger of injury and laceration, from the successive withdrawal of portion after portion of the broken and separated cranial bases, such as is generally requisite in craniotomy. 3. It diminishes the size of the fœtal head much more effectually than it can be accomplished by craniotomy. 4. By craniotomy we cannot fracture and reduce the size of the hard basis of the fœtal skull, but we can do so by cranioclasm. 5. Hence we have ultimately the head in cranioclasm so much reduced, that we can extract it both much more easily for ourselves, and, consequently, also more safely for the mother. But let me again, earnestly and anxiously, warn you against the grievous error of sacrificing, in any case, the life of a child during birth, when it might have been delivered by safer means, or of ever having recourse to cranioclasm, or any other form of embryulcia, without being fully convinced in your own mind of its dire and inevitable necessity. I think that I could easily show you, in the current obstetric literature of England, constantly recurring instances where this great principle, even in late years, has been recklessly and painfully set aside. Let me add, in conclusion, that I have heard of more than one instance in which the stage of perforation of the skull was actually accomplished, and where afterwards the child was nevertheless subsequently delivered alive by the expulsive efforts of the uterus, or by the use of the forceps, or by turning, and even subsequently lived. At the Obstetric Society here, Dr. Sidey some time ago showed a remarkable example of this kind, in a woman, herself the mother of a family, and whose head was perforated at birth some fifty or sixty years ago. The cranium of this person still shows a deficiency of bone at the point where the "deid instruments" (to use her own expression) were applied immediately before Nature managed to finish the birth. The case perhaps you will regard as the more interesting, since the perforation was done by the hand of a country medical practitioner, then pursuing his profession in the small town of Peebles, but in whose undying renown as a traveller we all now rejoice and glory ; for, before the date of the case in question, this operator had already done that mighty feat—he had explored and determined the course of the Niger ; and shortly afterwards he set off on his fatal visit to Africa. I scruple not to mention the name of the operator, because no professional error of this kind can possibly detract from the imperishable fame of that Scottish village surgeon and great African discoverer, Mungo Park.

---

[1] Not long after the publication of this Lecture, Sir James was induced to make trial of Scanzoni's cephalotribe, which he found so much more serviceable than the unwieldy instruments which had prejudiced him against cephalotripsy in his former experiments, that he set himself to get a still more manageable instrument constructed; and the results of his experience with the improved cephalotribe led him eventually to prefer it in the majority of cases to the cranioclast. [A.R.S.]

LECTURE XXXIV.

ON DROPSY, AND OTHER DISEASES OF THE FALLOPIAN TUBES.

GENTLEMEN—By means of an exploring needle, used as a slender trocar, I tapped the roof of the vagina, and removed from the left side of the pelvis of a patient this morning a quantity of pale yellowish fluid, of which I here show you a portion. It is alkaline in its reaction, highly albuminous, and perfectly clear; and it reveals, on microscopic examination, nothing more noticeable than a few scales of cylindrical epithelium. It very closely resembles, in fact, the fluid we sometimes find on tapping a simple ovarian cyst. In this instance, however, the fluid has not been derived from a cystic tumour of the ovary, but from another variety of cyst altogether, formed by a partial occlusion and dilatation or dropsy of one of the Fallopian tubes. I have already referred to this form of disease, incidentally, when speaking of ovarian dropsy; and as, among the very limited number of cases that it is in our power to admit into the ward, I may not have the good fortune during the session to be able to bring under your observation a patient affected with it, perhaps you will allow me to avail myself of this opportunity to offer you a few remarks on the morbid changes to which the Fallopian tubes are liable.

I. DISPLACEMENTS OF THE FALLOPIAN TUBES.

The Fallopian tubes have been found outside the abdominal cavity in some rare cases of hernia; usually when the uterus with all its appendages has made its escape through some one of the inguinal rings. Again, they have been found dragged from their proper situation, and bound down to the different surfaces of the uterus, as the result of old adhesions produced by inflammation of the peritoneal surface of the pelvic viscera.

II. HYPERTROPHY OF THE FALLOPIAN TUBES.

The thickness of the walls of the Fallopian tubes is due mainly to the development of their middle coats, which resemble in structure and relations the middle coat of the uterus. As in the uterus, so in the Fallopian tubes, this middle, muscular coat is liable to a certain degree of simple hypertrophy. At least we occasionally find the Fallopian tubes considerably enlarged on making post-mortem examination; but I am not aware that this morbid change ever occurs to such an extent as to become a subject of diagnosis during life, and to call for any active treatment. But there is a form of hypertrophy of the muscular coat, which sometimes comes to be a subject both of diagnosis and treatment—viz., when the hypertrophy becomes localised, and thus leads to the formation of

III. FIBROID TUMOURS OF THE FALLOPIAN TUBES.

I shall take occasion to try to prove to you, in another lecture, that the ordinary fibroid tumour of the uterus—perhaps the most common of the many forms of morbid growth to which that organ is subject—is nothing more than a nodose hypertrophy of some portion of the middle coat, which is composed chiefly of a mass of involuntary muscular fibres, in a more or less undeveloped condition, and the structure of which we find reproduced and imitated in the neoplastic product developed in it. I refer to the mode of origin of this common kind of tumour, in order to illustrate the manner in which a similar morbid growth may spring up in the homogeneous middle coat of the Fallopian tubes. Fibroid tumours in this situation are not of very frequent occurrence, and are more frequently matters of anatomical interest and examination than of clinical importance and observation, because when they do occur they are usually of such small size as not to give rise to any very marked set of symptoms. I show you, however, a drawing of a case which I attended with Dr. Gordon (see Fig. 93), where a tumour of this kind had attained a size equal to that of a child's head; and you can easily conceive what a difficult matter it would be to form a definite conclusion as to the nature and seat of a tumour presenting at once the firm and solid feeling characteristic of a fibroid tumour of the uterus, and the lateral situation and power of independent motion, which so often enable us to decide as to the ovarian origin of morbid growths. Such a tumour, let me remark in passing, requires, of course, to be treated on the same principles that guide us in the treatment of fibroid tumours imbedded in the walls of the uterus, or projecting on its peritoneal surface.

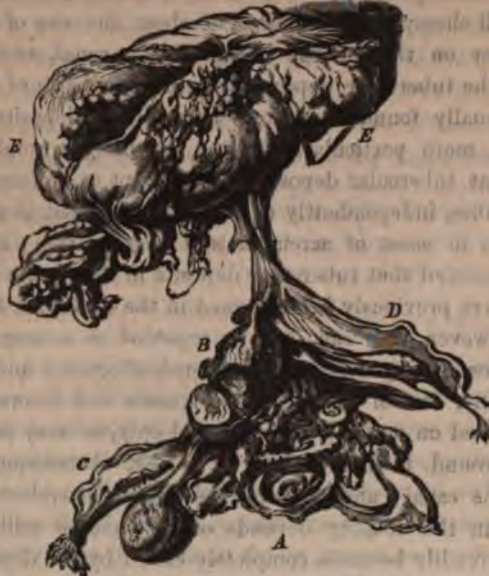


Fig. 93.

IV. Carcinoma of the Fallopian Tubes.

Cancer, in any form, rarely or never affects the Fallopian tubes as its primary seat. When we meet with it in these organs, it is usually secondary to its appearance in the uterus, or, more rarely, it may have spread to them from the contiguous ovaries or the broad ligaments of the pelvis; and hence the system is usually thoroughly infected with the cancerous diathesis, and the patient will usually present all the symptoms of the cancerous cachexy before the Fallopian tubes become involved. Carcinoma of these organs being thus a matter of but secondary importance, both as regards diagnosis and treatment, I need not do more than make you aware of the possibility of its occurrence.

Fig. 93. Sketch of a fibroid tumour growing from the Fallopian tube. A, The os uteri; B, the fundus uteri; C, the right Fallopian tube; D, the left Fallopian tube, with the tumour growing from its inner portion; E, the tumour.

V. TUBERCULOSIS OF THE FALLOPIAN TUBES.

Another form of constitutional disease which we sometimes find affecting the Fallopian tubes as its seat, is manifested here in the form of small cheesy-looking masses, of about the size of a pea, deposited in or on the mucous lining of the canal, and precisely resembling the tubercular deposits seen in other parts of the body. They are usually found associated with similar deposits in other organs, and more particularly in the uterus. It would appear, certainly, that tubercular deposits are more apt to be formed in the Fallopian tubes, independently of their development in the uterus, than we see in cases of carcinomatous degeneration; and it has even been asserted that tubercular deposits in the uterus only occur after they have previously been formed in the Fallopian tubes. In any case, however, they can only be regarded as among the local manifestations of a general constitutional affection; and they are thus, clinically, but of secondary importance and interest. They may be situated on one side of the canal only, or may pass almost completely round it in the form of a belt, obstructing or even occluding the canal; and the only peculiarity attendant on their appearance in this locality depends on the narrow calibre of the tube, which readily becomes completely closed by the deposits in or upon its sides, so that the secretion of the healthier portions of the mucous membrane is occasionally hemmed in and accumulates till a certain degree of dropsy of the tube is produced.

VI. INFLAMMATION OF THE FALLOPIAN TUBES.

The mucous membrane of the Fallopian tubes is not infrequently the seat of a certain degree of inflammation, which either arises primarily here, or stretches upwards from the interior of the vagina and the uterus. When it becomes chronic it gives rise sometimes to a form of uterine leucorrhœa; and a kind of catarrh or chronic inflammation has been sometimes adduced as one of the causes likely to lead to obliteration of the canal at some points, and hence to dropsy of the Fallopian tubes. Diphtheritic deposits occasionally occur in the mucous membrane in patients dying of some forms of puerperal fever, and in such cases we usually find similar deposits in the shreds of mucous membrane that still line the uterus, and on the surface of any wound that may happen to exist in the vagina. The inflammatory process here sometimes leads to the formation of pus, with which the tubes are occasionally found distended to a considerable extent when they have previously been obliterated at certain points. And, as if to show that here, too, the inflammatory process may go on to the higher stage of ulceration, there are one or two cases on record where death was brought about by a severe attack of peritonitis, excited, apparently, by the perforation of a Fallopian tube at an ulcerated spot.

VII. Hemorrhagic Effusions into the Fallopian Tubes.

To what extent the Fallopian tubes participate in the changes that occur in the uterus during menstruation, and whether in any case they furnish a supply of the hemorrhagic discharge characteristic of that function, are still to some extent subjects of speculation. But whether or not the mucous membrane of the Fallopian tubes be ever thus the seat of a physiological hemorrhage, we find as a matter of pathological observation that these canals may become filled and distended to a considerable degree with extravasated blood. When the extravasation takes place slowly, as in most cases it seems to do, and there has existed previously such an extent of occlusion of the canal that the fluid does not escape into the peritoneal cavity, the occurrence does not give rise to any symptoms so severe as to excite the patient's notice, or to any sign so certain as to enable us to make a diagnosis regarding it. But by far the most important of all the morbid contents of these organs are those which we meet with associated with the form of disease to which I wish now more particularly to direct your attention—viz.

VIII. Dropsy of the Fallopian Tubes.

That the Fallopian tubes may become distended into the form of dropsical cysts is admitted on all hands as a fact in pathological anatomy. But the clinical interest and importance of this, as well as of all the other morbid changes to which these organs are liable, have been so far overlooked, that in almost all systematic works we find little or nothing beyond a mere enumeration of them. A very few isolated cases, it is true, are on record, where dropsy of the Fallopian tube has been diagnosed during life, and one where it is said to have been treated successfully. To this case I shall again have occasion to refer. But usually, when this disease is referred to at all, it is described as being so similar in its symptoms and character to other dropsical swellings in the pelvis, and so difficult of distinctive diagnosis, as not to require any particular notice, or to call for any special treatment. I shall endeavour to show you presently that, on the contrary, it gives rise to special symptoms and presents peculiar characters which generally enable us to recognise it precisely and treat it with success. But let me, first of all, premise a few remarks with regard to

THE ETIOLOGY OF THIS DISEASE.

Several years ago Hooper and others showed that when the inflammatory process, stretching upwards from the vagina and uterus, came to affect the lining membrane of the Fallopian tubes in all their extent, it was extremely liable to be attended with the formation of adhesions at the fimbriated extremity, where the mucous and serous membranes ran into one another. As a consequence of this tendency to adhesive inflammation at the free end of the tubes, we not unfrequently find one or other of them bound down to the sides of the pelvis, to the uterus, or to the ovaries, or even simply obliterated from the union of its serrated margins. When an ovary to which a Fallopian tube has become adherent is enlarged and dropsical, it may occasionally burst and discharge itself along the tube and through the uterus, as shown by M. Richard, who specially pointed out this as one of the most common channels through which ovarian cysts were at times spontaneously evacuated. Or we may have a periodic discharge of a watery or serous fluid from the uterus under another condition—viz. when a Fallopian tube has become completely obliterated at its free extremity, and so far constricted at its uterine orifice as to prevent the escape of its ordinary secretion until that has accumulated to such an extent as to overcome the resistance presented to its escape, as seems to have occurred in a case recorded by Frank. More frequently the constriction at, or rather towards, the uterine extremity becomes more complete and permanent, and the fluid becoming thus finally retained in the tube, a dropsical cyst is ultimately produced. We may thus have dropsy of the Fallopian tube brought on as a result, *first*, of inflammatory changes commencing in its lining membrane. But, *secondly*, the cause is at least as frequently to be sought for in changes produced by inflammation of its peritoneal covering and of the peritoneal surface of the contiguous organs, which we find to be one of the most frequent causes of the deformities and displacements of these several organs, from its liability to lead to the formation of adhesions between the neighbouring opposing surfaces. In the case of the Fallopian tubes, in particular, inflammation of their peritoneal surface has the effect of closing up the free extremities by binding them to the neighbouring parts, and also of causing the tubes to be folded or bent on themselves once or oftener. When the ordinary secretion of the canal begins to accumulate between any two of these points of flexion, a degree of compression is ere long produced, which speedily leads to the intimate union of the opposite sides, and hence to complete occlusion of the canal; and in this way a temporary accumulation of fluid is converted into a permanent collection, and a dropsical cyst, or rather a congeries or chain of cysts, is developed.

Pathological Anatomy.

When a Fallopian tube becomes dropsical in consequence simply of an inflammatory process in its interior, the resulting cyst is usually single, and one end of it is produced by the occlusion of the fimbriated extremity, while the other corresponds to that point towards the uterine extremity of the tube where it begins to become narrower before running into the substance of the uterus, and where, consequently, complete closure is more apt to occur. We more frequently, on the other hand, find the tube divided into a series of cysts or rather of dilatations, where the morbid change is

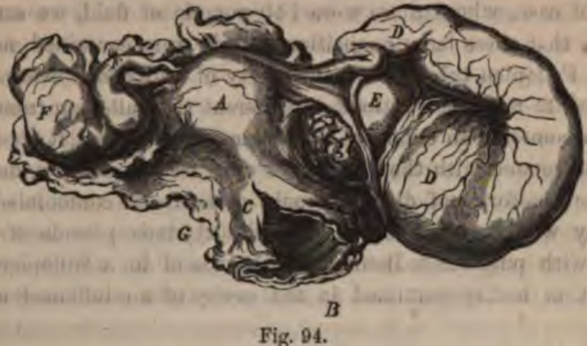


Fig. 94.

Fig. 94. A front view of the uterus of a patient in whom the uterine appendages were much diseased from repeated attacks of inflammation. *A*, the uterus; *B*, the vagina, cut open to expose *C*, the os uteri; *D*, the left Fallopian tube; *E*, the left ovary, in a state of incipient dropsy; *F*, the right Fallopian tube; *G*, the right ovary.—(*Hooper.*)

produced by adhesive inflammations, which cause the tubes
become convoluted on themselves, and the resulting cysts to
further indented, and divided by means of tight fibrinous ba
passing over their surface. The contents of these cysts are usu
clear and simple, like the fluid I have already shown you ; but
unfrequently the fluid is mixed with flocculent masses. The li
membrane of the cyst is subject to inflammation, and hence
occasionally find them containing inflammatory products, in s
cases mixed with hemorrhagic extravasations. The size attaine
these Fallopian cysts, or hygromatous sacs, as they have been d
nated by Hooper, varies greatly in different cases. Sometimes
distended tube at its most dilated point is no wider than the s
intestine ; not unfrequently the dropsical swelling is as large as
fist ; and occasionally, but rarely, it attains the size of the f
head. We may justly, I think, be allowed to be sceptical as to
correctness of the statements, or the carefulness of the observati
of those who have recorded cases where the tumour was of m
larger dimensions. When Munnik and Muralt, for example, re
that they have found respectively 110 pounds and 112 pound
fluid in a single Fallopian cyst ; and when Harder and Desorme
speak of cases where there were 140 pounds of fluid, we can o
suppose that these large quantities of fluid were contained, not i
dilated Fallopian tube, but in the cavity of a dropsical ovary.
if we call to mind how intimately adherent the Fallopian tube so
times becomes to an enlarged and cystic ovary, so that it appear
be amalgamated with the wall of the cyst, we can easily underst
how the two forms of disease should come to be confounded ;
we may well doubt whether even the thirteen pounds of w
mixed with pus, which Bonnet says he found in a Fallopian t
was not in reality contained in the cavity of an inflamed ova
cyst.

SEMEIOLOGY.

Patients affected with dropsy of the Fallopian tube complai
many of the same symptoms which we find associated with ova
tumours in the earlier stages of their growth. There is an une
sense of weight in the side affected, and a feeling of pressure on
limb. Usually the limb is rendered more or less numb from
pressure of the tumour on the nerves passing through the pel
and I have sometimes seen a patient rendered extremely lame
consequence. In some cases it acts chiefly upon the bowels, ke

ing them loaded, and the patient uncomfortably constipated. More rarely there is a certain degree of dysuria. In almost all the cases that have come under my observation, the patient has been sterile, even when the tube of one side only appeared to be affected. That the ova should fail to be conveyed by the tube of the affected side follows as a matter of course from the morbid condition of the canal; and perhaps the change in the position of the pelvic organs, produced by the pressure of the cyst, may have the effect of preventing the uterus from receiving the ova developed in the ovary of the opposite side. But none of the rational symptoms, nor all of them combined, will enable you to recognise the nature of the case, and to make a correct

DIAGNOSIS OF FALLOPIAN TUBE DROPSY.

In practice this form of disease is usually altogether overlooked, or is mistaken for some other kind of tumour. The lady from whom the fluid I have shown you was withdrawn came to this country from Australia, after having sought relief in vain at the hands of several practitioners in that colony, and since her return to Britain she had consulted a number of medical men, all of whom differed as to the nature of her disease, and all of whom supposed it to be seated in the uterus or left ovary. One gentleman, who has himself written about dropsy of the ovary and Fallopian tube, after examining this patient, told her that her trouble lay entirely in the mouth of the womb. When I first saw her, I could not come to any very definite conclusion as to the nature of the case. I could only determine by vaginal examination that there was some kind of tumour in the left side of the pelvis, for the rectum was at the time so loaded with fæces as to prevent all possibility of a thorough investigation of the character of the swelling. Having taken the precaution to have the bowels effectually cleared, I was enabled at my next visit to come to a more distinct and definite conclusion regarding it. For, by vaginal examination, I could discover the firmish fluctuating tumour at the left side of the uterus, and by introducing the second finger of the same hand into the rectum, and placing the other hand above the pubis, I could make out quite distinctly its situation and its relation to the neighbouring parts. It so happened that the abdominal walls in this patient were soft and very much relaxed in consequence of her having had a child sixteen years ago; and by examining simultaneously with one hand above the pelvis and two fingers of the other introduced into the interior, I could anatomise, as it were, the pelvic organs, and make out their conditions and relations. In this way I found the uterus to be perfectly sound and normal, while to the left side of it lay a tumour capable of being moved independently of the uterus, and which, from its painless and fluctuating character, could only be of a cystic nature; and as this cystic tumour was elongated in its shape, widening towards the outer extremity, and indented at several points as if folded on itself, I had no hesitation in setting it down as a dropsical dilatation of the left Fallopian tube. There were only two other kinds of tumour with which it could have been confounded—viz., 1st, a cystic degeneration of the ovary in an early stage; or, 2d, one of those thin-walled cysts which we sometimes find attached to the fimbriated extremity of the Fallopian tubes, or growing from the outer margin of the broad ligament, and which are produced by an accumulation of fluid in one of the unobliterated tubes of Gærtner. (See Fig. 95, *f f*.) But both of

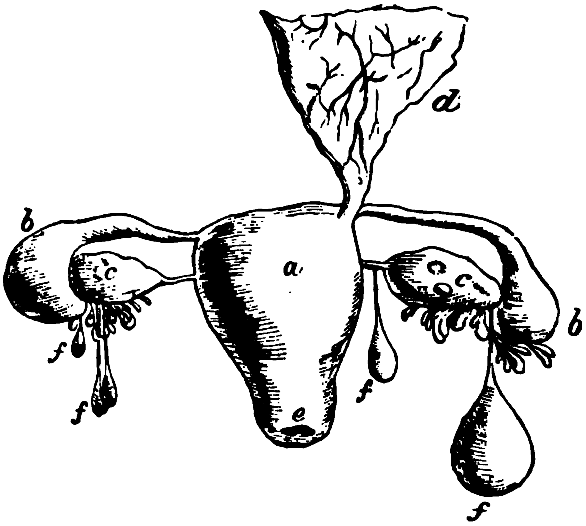


Fig. 95.

Fig. 95. "*a*, Uterus; *b b*, Fallopian tubes, distended, and closed at their extremities; *c c*, the ovaries; *d*, a portion of omentum adherent to the fundus uteri; *e*, the os uteri; *f f*, hydatids attached to the ovaries and fimbriated extremity of the Fallopian tubes."—(*Ruysch.*) The small pedunculated cysts described by Ruysch as hydatids are produced by a cystic development of the tubes of Gærtner, of which the pro-ovarium, or body of Rosenmüller, is chiefly made up.

these forms of cystic tumour have this difference in common from the dropsical dilatations of the Fallopian tubes, that they are at once both more rounded in their form and more smooth and equable in their outline. The tumour formed by a commencing cystic degeneration of the ovary differs further from this dropsy of the tube, in that it is more unyielding and elastic, containing, as it does, at this early period, more solid substance than serous cavities. The other kind of cyst, again, to which I have referred, is rarely found of such large size as to come under the notice of the practitioner, for ordinarily it is found, after death, of about the size of a pea, with a thin elongated neck or pedicle, and the largest of them almost never exceed the size of a hen's egg; while, from the quantity of fluid which I have shown you, you will be able to see that in this case the tumour must have been at least three times that size. From its size, therefore, and its situation, its elongated and somewhat conical form, its wavy sinuous outline, and its power of being moved independently of the uterus, I believe I am justified in concluding that I have here had to do with a case of dropsy of the Fallopian tube. I know not in what other light to regard it, or what other kind of cyst it well could be. I ought to add, that the very nature of the fluid which escaped through the exploring needle that was introduced for its evacuation, confirms me in my belief that this diagnosis is correct. For the fluid in a small ovarian dropsy — with which form of disease assuredly the cyst in question was most likely to be confounded, is usually too viscid to allow of its easy escape through a narrow canula; while in this case the clear evacuated fluid rushed through the small hair-like tube of the exploring-needle in a full free stream.

To resume, then.—The characters by which you will be enabled to determine whether a cystic tumour lying in the pelvis is due to the dilatation of a Fallopian tube, are, shortly, these:—

First, *Its free and independent Mobility.*—The tumour is freely movable in the cavity of the pelvis, and does not move synchronously with the uterus; but, on the contrary, it remains at rest when the womb is moved, and can be readily moved about by the exploring finger when the womb is kept firmly fixed, either by the hand placed above the pubes, or better still, by means of the uterine sound introduced into its cavity.

Secondly, *Its Elongated Form.*—As the fluid collects in and distends the tube in nearly all its length, the resulting tumour is of an elongated conical form, with the rounded base corresponding to the obliterated fimbriated extremity and the apex at the upper angle of the uterus.

Thirdly, *Its wavy Outline.*—In all cases the surface of the tumour feels more or less undulating and indented, for, in most instances, the distended tube is folded once or oftener on itself, and tortuous; and when it is not thus wavy and convoluted, the smooth outline is interrupted by the pressure of bands of plastic fibrine stretching over and indenting it.

I have also referred to the comparative size of the tumour, and its situation in the ordinary position of the Fallopian tube, as guides—though certainly of less value—in enabling you to discover and recognise the disease. If you have satisfied yourselves in any case as to the existence of the characteristics which I have attempted to portray, you may proceed at once to confirm your diagnosis of the disease, and initiate your treatment, by introducing an exploring-needle into the interior of the cyst, and examining the fluid that escapes, which, as I have stated, is usually perfectly limpid and clear. It is, no doubt, a matter of considerable difficulty to make out clearly in certain cases the actual presence of a tumour with all the characters I have described; and to decide positively that it is a dropsy of the Fallopian tube, will demand a certain amount of experience on your part, and no small care and caution in conducting the examination. But the difficulties of the case will be lessened, and the diagnosis will be rendered more certain, if you will always take the precaution to investigate the pelvic organs by means of both hands simultaneously—one being placed over the fundus uteri, and pressing down upon the pelvic organs through the abdominal walls, while two fingers of the other hand are passed into the two canals at the outlet of the pelvis, for the purpose of examining the state of its contents from below. Where the patient has previously had a family, the abdominal walls are soft and flabby, so that the pelvic organs can be readily felt through them; and where they are firmer and less yielding, by putting the patient under the influence of chloroform they will be so far relaxed as to enable you to have all the parts thoroughly at command.

PROGNOSIS.

In the great majority of cases the disease has remained unrecognised and unsuspected during the lifetime of the patient, and has only been discovered after death when the body was subjected to a post-mortem examination; and this is more particularly the case where the cyst is not of very large size, and its contents consist simply of a serous fluid. But where some morbid process has been going on in the interior of the cyst, and the altered mucous membrane has become the seat of inflammation in its higher grades, or where it has been subjected to injury, so that the contents become mixed up with purulent effusions and bloody extravasations, the ultimate issue is apt to be less favourable. For in such cases it sometimes happens that the cyst-wall becomes ulcerated through or bursts, and the morbid and irritating fluid, escaping into the cavity of the peritoneum, lights up a degree of inflammation on its serous surface that proves rapidly fatal. In some few cases, again, the disease may be recognised during life, even when the cyst is of the simplest kind, but where it is of sufficient size to give rise to the series of symptoms to which I have alluded. In such cases you may succeed in diagnosing the disease in the manner I have described to you, and in conducting it to a favourable termination by an appropriate plan of

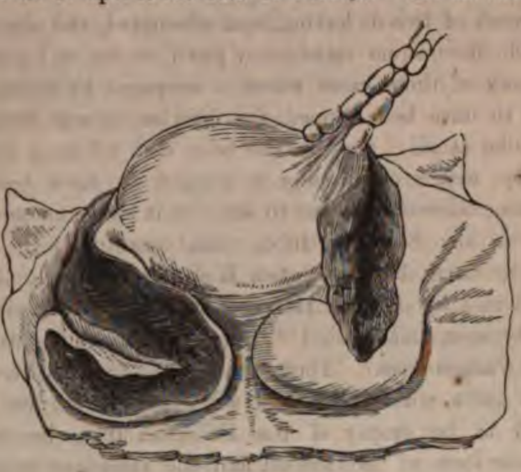


Fig. 96.

TREATMENT.

Medical treatment of any kind seems to be of but little avail for the cure of this kind of malady. In the patient whom I tapped

Fig. 96. Dilatation of the Fallopian tubes from obliteration of their orifices. The sinuous convoluted sacs are filled with a dark sanguinolent matter.—(*Becquerel.*)

this morning, medicines of every class had been tried, but all without effect. We have no remedy which, when administered internally, has the property of causing absorption of the fluid secreted into the interior of cystic cavities of the Fallopian tube, any more than we have remedies which can cause dropsical tumours of the ovary to dissolve and disappear. The only effectual means of affording relief to the patient, and her only hope of a permanent cure, is the removal of the fluid by puncturing the cyst. Systematic writers speak of this as having been attempted, and always proving fatal; but there is no satisfactory proof, so far as I can discover, that in any of those cases where a dropsical Fallopian tube was supposed to have been tapped, the fluid really was contained in a dilated tube at all. And in the only case where a cure of this disease by means of tapping is alleged to have been effected, there is no evidence whatever to show that the evacuated fluid had collected in the Fallopian tube. The case to which I allude is recorded by Bartholin in the *Acta Medica et Philosophica Hafniensia*, as contributed by Johann Heinrich Brechtfeldt, Physician to the Queen Dowager, and headed "Dropsy of the Right Uterine Tube cured by Paracentesis." There was a large tumour, he tells us, in the right groin, which interfered with progression, and which he concluded to be dropsy of the Fallopian tube, because of the semicircular form of the tumour, and the attendant suppression of the menses. These are but meagre data, assuredly, on which to found a diagnosis; and our doubt as to its correctness, or rather our belief in its incorrectness, is confirmed by the statement he goes on to make as to the effect of puncturing the cyst at its most dependent point, an operation which allowed the escape of several pounds of fluid. The further history of the case is interesting, however, in this respect, that after the wound had been left open for three months, a complete cure was finally effected, and the patient afterwards became pregnant and gave birth to a living child. The operation to which I have had recourse in those cases where I have been able to satisfy myself as to the existence of Fallopian tube dropsy, consists simply in puncturing the cyst with an exploring-needle, introduced through the roof of the vagina. Although this plan of operation, as I have since become aware, has been proposed by Meissner, and discussed and condemned by Kiwisch, no one else, so far as I know, has ever attempted to put it in practice. Yet it is a very easy operation, and one which is not attended with any suffering or any great degree of danger.

The exploring-needle is used here with the double view—first, of making sure of the diagnosis as to the cystic character of the disease; and secondly, of effecting a cure. It is pushed right into the tumour at its softest and most dependent point, having been introduced through the roof of the vagina, and passed behind the broad ligament, on the posterior surface of which the tube is situated. The fluid is allowed to drain away completely through the narrow tube of the exploring-needle; and, as the result of this simple operation, you will usually find that a certain degree of inflammation is set up in the lining membrane of the cyst. If the inflammatory process do not proceed too far, the effects are most beneficial, for it leads merely to obliteration of the cavity, or to such a change in the lining membrane of the cyst, that it no longer furnishes the dropsical fluid with which it was formerly distended. Should the inflammatory action threaten to become too high, it can easily be kept in check by the use of antiphlogistics and counter-irritants. You might imagine that, after this operation, the condition of the internal organs of generation would be such as to render it impossible that they could perform their functions. But experience has shown that this is not the case. A number of years ago I had under my care an American lady who had long suffered from symptoms which I found to be due to dropsy of the Fallopian tube, and in whom I effected a cure by tapping the cyst with an exploring-needle in the manner I have described. She had a pretty smart attack of inflammation after the operation, which I succeeded, however, in subduing by means of leeches, etc., and believing that one Fallopian tube, at least, had become obliterated, and the condition of all the pelvic organs modified in consequence, I never dreamt that there was any possibility of her ever afterwards becoming a mother. Nevertheless, she wrote to me a year or two afterwards, telling me that she had carried a fœtus to the full term of pregnancy, although it unfortunately perished during parturition. If, again, we come to inquire as to the probability of the fluid re-accumulating in a Fallopian cyst that has been evacuated, we find the results of past experience to be of the most satisfactory kind. I cannot tell you why it is; but when a cyst formed by the dilated Fallopian tube has been once evacuated and contracted, it shows no tendency whatever to refill and reassume the dropsical condition. I can easily imagine, however, that in some cases the fluid may be apt to re-accumulate, and call for a repetition of the operation; or it may even be found necessary in some obstinate cases to have recourse to the injection of tincture of iodine, or some other stimulant, in order to excite such a degree of inflammation in the cyst-wall as shall lead to the occlusion of the cavity, or to a destruction of the secreting powers of its lining membrane. But in none of the cases where I have evacuated a dropsical Fallopian tube has there been any attempt at the reproduction of the fluid, the degree of inflammation which was set up in the walls of the cyst as the result of the simple evacuation appearing always to have been sufficient to effect a perfect cure. I believe that in all the cure has been not only perfect, but permanent, for in some instances several years have elapsed since the date of the operation, and still the patients continue well. I can recall at this moment to my mind eight different patients, in whom I have had recourse to the operation, and in all of whom a perfect, and, so far, a permanent cure has been obtained.

One of the most interesting cases of this disease that has come under my notice occurred in the person of an unmarried lady, who came to consult me eight years ago. For many years previously she had suffered from a constant and increasing pain in the right side of the pelvis, which had become so acute and incessant for about a year before the time that I first saw her, as to keep her almost entirely confined to bed; and the pain stretched down the limbs, so that she could not bear to put her right foot to the ground. A swelling could be felt in the right groin, about the size of an egg, which had all the physical characters that I have described to you as peculiar to the dropsical Fallopian tube. I tapped the cyst with the exploring-needle, and the disease was thus speedily cured. I have heard from this patient recently, and she tells me that she continues "quite well—a wonder to myself, and all who knew me some years ago."

LECTURE XXXV.

ON PUERPERAL MANIA.

GENTLEMEN—We had, a short time ago, in the hospital, a recent case of vesico-vaginal fistula. The patient died, but not in consequence of any operation attempted for the relief of that disorder, but of an acute attack of puerperal mania. In taking advantage of this unfortunate case to make some observations on the nature, the causes, and the treatment of this disease, let me first of all briefly acquaint you with the patient's sad history.

CASE.—Christina S., admitted into the hospital on March 20, 1860, was a factory-girl of 25 years of age, and of feeble mental constitution. Eight weeks before admission she was confined, in the country, for the first time, of an illegitimate child; and was in labour for three days. The pains, according to her own account, were so severe that she was constrained to keep her bed throughout the entire period. The child was still-born; although she stated that she was sensible of its movements not long before its delivery. There was no medical man in attendance, and no instrumental or other artificial aid was afforded her, the whole process having been conducted by a midwife. From the date of her confinement she made no water through the urethra, but it kept escaping continually through the vagina. On examination per vaginam a large fistula was found opening into the bladder, of an oval form, and reaching from below the os uteri more than halfway down the anterior vaginal wall. When she entered the hospital, the edges of this fistulous aperture were already thickened and indurated, and there was a strong cicatricial band stretching across the back wall of the vagina, and greatly narrowing its diameter. The patient was slovenly and dirty in her habits—as is so frequently the case with partially idiotic individuals—and in consequence the pudenda and inner surfaces of the thighs and hips were in a very filthy, irritable, and inflamed condition. For the first day or two after her admission Carron-oil and zinc-ointment were applied externally, while bismuth pessaries were introduced into the vagina. On the 24th, the excoriation having been greatly relieved, and the patient's general health somewhat improved, the band across the back wall of the vagina was divided by a slight incision, in order to gain sufficient subsequent space for the operation of the closure of the large fistula. This simple division of the vaginal constricting band was attended with almost no hemorrhage and but little pain; and for two days the patient seemed to be quite well, although she still showed herself, as she had from the first been, singularly stubborn and very averse to talk or answer any questions that were addressed to her. On the morning of the 27th the other patients in the ward complained of her having been very noisy and troublesome during the preceding night, and of having been deprived of their rest in consequence. But there was no great indication yet of any mental or bodily excitement ; the pulse was quiet and rather weak. On the following night, however. she became so noisy and violent that she had to be removed to the ward appropriated to the insane, where she lay for three days with the mental faculties completely in abeyance, being sometimes slightly excited, but usually quiet and unimpressionable, speaking incoherently when addressed, and immediately relapsing into stupor. The pulse was very weak, irregular, and rapid ; and on April 1 she sank and died. On making a post-mortem examination, the large vesico-vaginal fistula was found stretching from the lower half of the vagina close up to the os uteri. The slight wound in the band crossing the posterior wall was granulating and healthy, and presented no trace of over-action. The kidneys were slightly fatty: the other abdominal and pelvic organs normal. No lesion could be discovered in the brain itself; but the meninges were thickened and vascular, and the skull was deformed, and very irregular in shape.

The disease, which you have had an opportunity of seeing and following to its rapid termination in this unfortunate patient, is by no means very frequent among puerperal patients. Yet the statistics of insanity appear to show that about ten per cent of all the females found in lunatic asylums have become the inmates of these institutions in consequence of puerperal mania. Insanity may supervene at various periods in connection with the process of reproduction. (1.) It occasionally occurs during the progress of pregnancy. In such cases it has been observed, that although the disease may be prolonged to the puerperal period, and even on to a more distant date, yet that most frequently it disappears on the termination of labour. Let me remark, in contrast with this fact, that some curious cases have been recorded where women, previously of unsound mind, have become sane, and remained so during the whole term of their pregnancy. (2.) Again, while labour is progressing, a patient may be the subject of an attack of mania. Usually this form of mania or delirium is brief and evanescent. It was specially described and illustrated by my late friend Dr. Montgomery. This temporary variety of insanity during labour seems to be excited by the mere intensity of the pains, and is most marked, or most frequently seen, towards the close of the second stage. Usually it manifests itself in wild, incoherent, or improper utterances on the part of the patient, and passes off as the labour is brought to its termination. I have known it, in one instance, assume the form of impulsive suicide; the patient, in the case I advert to, having sprung out of bed and seized a razor in the agony of her sufferings when the os uteri was on the full stretch at the end of the first stage of labour. After the head passed down into the vagina this state of delirium vanished, and the patient was then as horrified as her attendants had previously been at the maddening impulse which had previously seized her. But puerperal mania—properly so called—rarely occurs till after delivery. Its most general date of appearance is (3) during the first two months after delivery, but especially during the first two weeks of that period; and (4) in some patients it only comes on during lactation, and occasionally, indeed, it does not appear till the very end of that process. It is of puerperal mania—as seen after delivery—that I intend to speak to you at present. The special date at which it may come on after parturition can be seen from this table constructed by Esquirol:—

Date of the Attack of Puerperal Mania in Ninety-two Cases.

16	were attacked from the	1st	to the	4th	day after delivery.
21	,,	5th	,,	15th	,,
17	,,	16th	,,	60th	,,
19	,,	12th	,,	12th	month of lactation.
19	were attacked after forced or voluntary weaning.				

Etiology and Pathology of the Disease.

The causes and pathological nature of puerperal mania have not yet been clearly elucidated; and of the various theories that have been advanced regarding this always distressing malady, there is none that can be held as applicable to more than a certain group of cases. It is, however, a subject of great interest, and one in regard to which renewed investigations and original observation may yet yield important results. One well-established fact in connection with it is, that in a large number of persons puerperal mania is found associated with a

1. *Hereditary Predisposition to Insanity.*—I know, for instance, of one case where a lady was attacked five times with puerperal mania after as many successive confinements, and in whom the proclivity to the disease seemed dependent on some hereditary and constitutional condition, for several of the other members of the family to which she belonged were at different times under treatment for some form of mental disorder. In none of her first five confinements had the lady I speak of used chloroform; but on the occasion of her sixth delivery, she insisted on being anæsthetised, and for the first time after so many labours she recovered without once manifesting any tendency to insanity. Dr. Montgomery has related the history of a case where a lady belonging to a family hereditarily predisposed to

insanity became the mother of eight children; and on the occasion of the birth of each of her infants she passed through an attack of puerperal mania. Cases such as these come under observation from time to time; and although assuredly it does not often happen that a person who is hereditarily predisposed to mental disorders becomes the subject of puerperal mania when she gives birth to a child, yet when a person so predisposed has once had an attack of the disease, her future labours must ever be looked forward to with much anxiety by her medical attendant, and her progress marked with the greatest care. It is calculated that in about forty or fifty per cent of all cases of puerperal mania, some hereditary predisposition to insanity can be traced. In nearly one-half, therefore, of all the instances of the disease which may appear in practice, you will fail in establishing any such hereditary tendency. But whether traceable or not in the history of the patient or her relatives, mere hereditary predisposition affords in itself no adequate explanation of the actual occurrence of an attack of puerperal, or indeed of any other form of insanity. Can we trace in the puerperal female any special exciting causes or conditions capable of exciting this special disease? Pathologists and obstetricians have attempted to refer the excitement of puerperal mania to different morbid states more or less frequently found in connection with delivery and lactation; as,

2. *Anæmia and Exhaustion.*—Puerperal mania has been known to come on in females in regard to whom no other cause was discovered for its appearance than the fact that they have lost a large quantity of blood during some stage of labour; and the anæmia which is sometimes seen to such a marked degree in patients who are the subjects of puerperal mania, has been recognised by some authors as a characteristic cause and feature of the disease, more particularly in its chronic forms. Dr. Marshall Hall, indeed, has, as a general principle, attributed the occurrence of mania in puerperal females principally to the exhaustion so common to their condition, combined with some degree of intestinal irritation. But mere simple anæmia and exhaustion, either by hemorrhage or even lactation, is not of itself sufficient to produce mania. At all events, the alleged cause is very, very often present in practice, without the alleged effect following. The theory, at best, if applicable at all, is applicable only to a very limited number of cases; and affords no more satisfactory explanation of the origin of the disease than does the more general statement that puerperal mania results from

3. *The Peculiar State of the Sexual System which occurs after*

Delivery.—This theory was that propounded by Dr. Gooch in his original essay on puerperal insanity. He explained and illustrated his hypothesis by calling to mind the intimate sympathy that exists between all parts of the body and the sexual system in its periodic actions, and by insisting on the high degree of nervous susceptibility induced in lying-in women as a result of the organic changes that succeed delivery. But even when thus explained, the theory hardly helps us to a clearer comprehension of the real origin of the disease. Bearing in mind the peculiar nervous excitability of a puerperal patient, we can understand why she should be more readily acted on by any agent capable of producing a morbid action of the brain or mind at such a time, rather than under other circumstances; but the nature of the morbific agent still remains to be determined. Nervous susceptibility, in a greater or less degree, is confessedly common, to a greater or less extent, to all puerperal women; and yet only a limited number of them are attacked with puerperal mania. Perhaps this fact can only be explained, as it seems to me by supposing that in those so attacked there is present some specific morbid alteration which acts on the enfeebled and excitable nervous system so as to call forth the peculiar phenomena that characterise the disease. The scalpel and microscope have hitherto so entirely failed in establishing, in the brain itself or its envelopes, any determinate pathological changes in connection with puerperal insanity, in its more acute forms at least, and earlier stages, that we are perhaps so far justified in laying it down as a high probability, that "the specific morbid alteration" in the economy which constitutes the pathological cause and essence of puerperal insanity, does not exist in the solids of the body, or rather, let me say, of the encephalon. Various circumstances, on the other hand, appear to show that the specific morbid alteration in question exists, in the first instance at least, in the presence of a morbid change or morbid agent in the blood; or, in other words, that the disease originates in a state of blood-poisoning, or

4. *Toxæmia.*—The absolute want of any determinate pathological changes in the brain or its membranes in recent fatal cases of puerperal mania—the rapidity with which the disease sometimes comes on, as well as the rapidity also with which it occasionally disappears, and the phenomena themselves of the malady, so similar as they are in character, at their first supervention, to the toxicological phenomena of blood-poisoning by alcoholic and narcotic poisons—are all circumstances pointing to the probable toxæmic origin of puerperal

insanity. But if you ask further, What is the special morbid change, or what is the special morbid agent in the blood, which, when accumulated there in sufficient quantity, produces puerperal mania? then I can only answer, We know not yet, and will not know till pathological chemistry, which is still in its first infancy, has grown and advanced to an extent and certainty infinitely beyond its present very limited bounds. Some men have already ventured to name the probable poison which produces puerperal mania. Thus I have seen it referred to the use of various narcotic vegetable poisons, of alcohol, and latterly of chloroform. The gentleman who has taken up this last notion—forgetting that puerperal mania was as well known and as prevalent before the discovery of chloroform as it is now—reasons exactly as that medical logician did, who, when denouncing the introduction of vaccination, ascribed to it all the evils which had occurred in the world from the decline and fall of the Roman Empire down to the breaking out of the French Revolution. Let me here merely state that I have seen puerperal insanity occur after the use of chloroform in labour, but certainly not more frequently than I have seen it occur *without* the use of chloroform during parturition. Some years ago, when this objection to chloroform was first brought out, I went out to the Morningside Lunatic Asylum, and there found, with Dr. Skae, that eleven cases of puerperal mania had been admitted from Edinburgh into that institution during the preceding year; but by an extraordinary series of chances none of these eleven patients happened to take chloroform during their labours. And I have no doubt that the obstetric use of anæsthetics sometimes prevents, rather than produces, the supervention of puerperal insanity. I have already alluded to an illustrative case. After her first five labours, a patient, as I stated to you, was each time attacked with puerperal insanity, and was each time sent to a lunatic asylum for recovery. During her sixth labour she insisted on getting chloroform, averring that her mind had always previously become upset in consequence of the extreme intensity of the sufferings which she endured. After this, her sixth labour, and the first in which she used chloroform, no symptoms of insanity appeared. She attributed, and perhaps quite correctly, her escape on this occasion from her dreaded malady, and from the horrors of a lunatic asylum, to the use of chloroform during her labour.

But, recurring again to the question of the toxæmic origin of puerperal insanity, I would beg further to observe that we have an additional argument in favour of this view, in the fact that in a large proportion of cases of the disease we have present at its commencement a marked state of *albuminuria*.

ITS CONNECTION WITH ALBUMINURIA, ETC.

We have discussed the dependence of Puerperal Mania upon 1. Hereditary predisposition to insanity; 2. Upon anæmia and exhaustion; 3. Upon the peculiar state of the sexual system that exists after delivery; and, 4. I have tried to show you the probable production of the disease by blood-poisoning, or toxæmia. Let me now direct your special attention to its connection with a more patent and discoverable morbid chemical state, viz.

5. *Albuminuria.*—Few circumstances in modern pathology are more striking than the frequency with which the presence of albumen in the urine—as detected by heat and nitric acid—is found to precede, complicate, or follow, various diseased actions in the animal economy. Before Dr. Bright drew the attention of the profession to the subject of albuminuria, now some five-and-thirty years ago, the condition of the urine, particularly in regard to the existence of albumen in it, was rarely—or almost never—looked for in practice. All this is greatly changed now. You know how constantly albumen is tested for in modern clinical medicine and surgery—what a long catalogue of medical affections it is found to be connected with—and how important an indication albuminuria generally is as a test of the insusceptibility of patients to undergo the greater chirurgical operations. The same state of albuminuria is found to play also an important *rôle* in some points of the obstetric pathology of the present day. As long ago as 1818, Dr. Blackhall gave, in his work on dropsy, a very brief notice of a case of albuminuria in a pregnant female, complicated with anasarca. It was not, however, I believe, till 1843 that the frequent, or indeed almost constant, connection of albuminuria with puerperal convulsions—the most important of all the ascertained complications of albuminuria with midwifery—was published.

During three or four years before the date which I have mentioned, I had repeatedly ascertained that the œdema which so generally precedes puerperal convulsions was connected with the presence of albuminuria. In several cases of puerperal convulsions I had found albuminuria as a precedent and accompaniment of that disease; but I had no opportunity of ascertaining, by dissection, the co-existence of disease of the kidney with puerperal albuminuria and convulsions, until a fatal case occurred in 1843, a note of which, and of this connection of these two morbid states, was published by me in the *Monthly Medical Journal* of that year. The late Dr. Lever published, in the last number of the "Guy's Hospital Reports" of 1843, a most excellent and masterly paper on the same subject; and from that date the dependence upon, or rather the precedence and co-existence of, puerperal convulsions with albuminuria —and generally with albuminuria in a highly-marked degree—has become an acknowledged fact in obstetric pathology. I have seen and described other complications and disorders of the nervous system with puerperal albuminuria, besides convulsions. Affections of the motory powers in the way of imperfect local paralysis of one or more extremities, passing onwards sometimes to the extent of hemiplegia or paraplegia, occasionally occur in connection with albuminuria during pregnancy. I have seen during the puerperal state two instances of partial immobility and twisting of the half of the face from paralysis of the portio dura of the seventh pair, complicated with the presence of albumen in the urine. Local muscular spasms and contractions are more rarely found to be produced by it; and let me note incidentally, as I pass, that you will often find laryngismus stridulus in infants complicated with albuminuria. Obstinate vomiting in pregnancy is sometimes connected with it. I have traced occasionally the recurrence of abortion and premature labour to the same complication. Puerperal lesions of the senses, particularly of hearing and sight, are very generally found to be dependent on it. More or less marked amaurosis is not rare in the pregnant and puerperal states; and puerperal amaurosis is, in practice, a very certain sign of puerperal albuminuria. I have only found it, indeed, absent in one case, but in this instance the amaurosis had already persisted for several months subsequent to labour; and probably the albuminuria had been present in the early stage of the attack, but had latterly disappeared. Puerperal convulsions, when severe, are often accompanied with coma; and various shades of coma have, alike in the puerperal and in the non-puerperal state, been often found to co-exist with albuminuria. In 1856 I brought the connection of puerperal insanity with puerperal albuminuria before the Edinburgh Obstetric Society, and a short abstract of these remarks was published in 1857 in the society's proceedings. At that time I had observed albuminuria in connection with puerperal insanity in four successive instances, and I have repeatedly seen the same connection since that time in various consultation and hospital cases. I would have found it, of course, in plenty of cases before the four I allude to; but I had, like others, never tested for it till the first of these four cases occurred, and in it, and the three next which I saw, the albuminuria was present in a very marked degree. I am not aware that any observations have as yet been published by others upon the subject. In the patient whose death in the infirmary from puerperal insanity forms the groundwork of the present remarks, it was out of my power to test the presence of this symptom—as the urine passed constantly away through the vesico-vaginal fistula, and could not be collected for examination. The cases of puerperal mania which I have had an opportunity myself of observing and watching, and those that have been reported to me by my professional brethren, have furnished a series of facts or elements which may be thrown into the form of two or three propositions. These propositions, however, will no doubt become altered and varied in several respects, when more extended observations are made upon the subject. In the meantime it appears, as far as my present knowledge and experience go,

a. That albuminuria precedes and attends the first access of puerperal insanity in a large proportion of cases; but perhaps not so frequently and so constantly as it precedes and attends upon attacks of puerperal convulsions. I have found it present in eight out of ten cases of puerperal insanity, at the commencement of the disease; and possibly it escaped observation in these two cases from not being looked for sufficiently early in their progress. For it seems to me,

b. That the coagulability of the urine in puerperal insanity generally disappears within a short time after the attack commences, and hence disappears more speedily than happens in puerperal convulsions. The fire of disease goes on burning in these cases of insanity after the lighted match is merely applied, and the strange morbid clockwork runs on, as it were, after the key that wound it up is withdrawn. I have seen all traces of albuminuria in puerperal insanity disappear from the urine within fifty hours from the access of the malady. The general rapidity of its disappearance is, perhaps, the principal, or, indeed, the only reason why this complication has escaped the notice of those physicians among us who devote themselves with such ardour and zeal to the treatment of insanity in our public asylums. As another proposition let me state,

c. That when the puerperal insanity recurs in the form of successive attacks or explosions, each attack may be found connected with a new attack or advent of albuminuria. In one of the first cases in which I had occasion to watch the connection of puerperal insanity with puerperal albuminuria, two accesses of mania came on, both very suddenly; and the last of them proved ultimately fatal. Between the two attacks there was an interval in which all symptoms of any mental disorders were completely absent. The first urine passed after the access of each paroxysm was highly albuminous. During the intervals between the two attacks it lost all tendency to coagulate under either heat or nitric acid.

Puerperal convulsions, which, as I have said, are almost invariably connected with albuminuria, are often attended—particularly when very severe in their character—with some temporary degree of incoherence, delirium, or stupefaction; but they rarely, as far as I have seen, terminate in true and established puerperal insanity. Dr. Churchill, however, states that he has seen puerperal insanity accompany or follow puerperal convulsions in more than one case; and instances of the same kind are alluded to by Drs. Reid, Merriman, Gooch, Esquirol, and others. Dr. Ingleby seems to have noticed, in repeated examples, the lapse of puerperal convulsions into mania. In his essay on Puerperal Convulsions he observes: "I am acquainted with several cases of puerperal convulsions, which were succeeded by puerperal mania; the transition (he adds) might probably be the result of the large bleedings which were necessary to subdue the primary disease." We have a more simple and certain explanation of the connection between them in the pathological fact that both are found to be dependent upon, and in some way or other connected with, the pre-existence of albumen in the urine. But if you ask me, further, How does the presence of albuminuria in the urine account for the supervention of either puerperal convulsions or puerperal mania? and more particularly, How can it originate two such diverse morbid states as convulsions and insanity?—then in answer I can only, I fear, confess my ignorance of the probable or possible rationale of the problem. Pathological chemistry must make very great progress, ere we can hope to solve perfectly any such deep pathological riddles. The mere presence of a great amount of albumen in the urine does not in itself afford any explanation of the result, because the loss by excess of a far greater amount of albumen from the mass of circulating blood would produce no special effects or results upon the nervous system. But the presence of an excess of albumen in the urine is usually accompanied with other and far more important changes, directly in the chemistry of the renal secretion, and indirectly in the chemistry of the blood itself. When albuminuria exists, there is always liable to accompany it a diminished elimination of the urea, and perhaps of other excrementitious matters that pass off by the urine; and, consequently, there is a corresponding retention within the circulating system of these effete substances that should be duly and systematically thrown off by the action of the kidneys. Urea, when thus or when otherwise accumulated in morbid excess within the circulating system, does not, according to the observations and experiments of Frerichs and others, produce any very special intoxicating or poisonous effects upon the nervous system, merely *per se*, or simply as urea. But the accumulated urea is apparently liable to decompose and become altered under varying influences into various new organic compounds within the body, some of which, like morphia, strychnine, coniine, and other vegetable alkaloids, produce different diseased states, by exerting different toxicological effects upon the cerebro-spinal and other systems. Dr. Frerichs holds that the mere simple and common decomposition of the accumulated urea into carbonate of ammonia is the cause of albuminuria ending in convulsions and coma. Urea, as urea, does not, in his opinion, and according to his experiments, produce convulsive and comatose effects; but these effects are produced by a sudden excess in the circulating system of carbonate of ammonia, a salt which urea readily forms when it becomes decomposed. But when the whole constitution and chemistry of the blood becomes deranged and altered by the sudden accumulation of the excrementitial materials of the urine within it, as is always liable to happen in puerperal albuminuria, other organic toxicological agents may become developed within the system from the decomposing urea or other components of the urine—possibly some of these newly-formed products or agents of an *alkaloidal* character—and one or other of which may be as certain of exciting delirium and insanity, as an overdose of morphia or brucine, or other poisonous vegetable alkaloids, is certain of exciting their special toxicological effects upon the economy. Mr. Calvert and other chemists have lately found organic alkaloids of various, and most of them of still unknown types, formed during animal decomposition. In the blood of the puerperal female—greatly modified as it is in the normal states of pregnancy and delivery, and containing as it does after parturition the effete elements of the involving or disintegrating uterus, and the materials for the new lacteal secretion—ferments, and agents may possibly exist, which are more apt to develop special morbid poisons out of the retained renal excretions than happens in other states of the system. But I repeat, the whole subject is yet quite dark and conjectural, and will remain so till pathological chemistry is able to cast some light upon it.

6. *First Deliveries.*—It has been well ascertained that puerperal convulsions occur much more frequently in connection with first than in connection with subsequent labours, and that, consequently, puerperal albuminuria is correspondently more common in primiparous than in multiparous patients. Puerperal insanity is apparently also in the same way, and probably for the same reason, but not perhaps to the same extent, observed more frequently after first than after future labours. When speaking of the relations of convulsions to insanity, Dr. Reid quotes authority to the effect "that each of them is more liable to attack the female in her first accouchement than in after ones." Marcé found that among 54 cases of puerperal insanity, 14, or about 1 in every 4, were primiparæ. Out of a list of 53 cases collected by Dr. Gundry, 18, or about 1 in every 3, were found to have been attacked with the disease in connection with their first pregnancy and first parturition.

7. *Mental Emotions.*—We occasionally find, in the case of puerperal patients, in whom all the circulatory and secreting functions are disordered and deranged, in consequence of parturition and the resulting changes in the generative and mammary organs, that a shock which, in other circumstances, would have produced no more dire result than a passing mental emotion, may have the effect of disturbing completely the mental balance, and calling forth all the symptoms of one of the most distressing and dangerous forms of madness. Many years ago I had under my care a patient who had just recovered from her first labour, and had been going on extremely well for about a month, when she was abruptly told by a gossiping old lady whom she received in the drawing-room, that her father had become a bankrupt during the period of her confinement. This distressing news had previously been most sedulously kept from the patient, and when thus suddenly and senselessly informed of it, she was led back to her bedroom quite insane, and died of a rapid and acute attack of puerperal mania. Another case, of a still more painful character, happened in the practice of a friend here. A lady—one of that rather numerous class of people who have a constitutional horror of mice—had made her husband happy by giving birth to a child, and was making a favourable recovery. A

sister-in-law, who had a deep dislike to this lady, sent her a few days after her confinement a box, which she opened for herself in bed, in the expectation of finding a present for her infant, when she was literally "frightened out of her wits," by the escape of a lot of living mice; for such was the cruel gift of her evil-minded relative. The influence of mere mental or moral emotions in giving, on the large scale, an increased tendency to the production of puerperal mania, has been fully proved by various authors, through an appeal to one variety of evidence—viz. the relative proportion of cases of the disease among married and unmarried mothers. This unfortunate latter class of patients are, it will be allowed on all hands, far more under the influence of depressing moral emotions, during parturition and the puerperal state, than married females are. They are also, proportionately, much more liable to attacks of puerperal mania, according to most writers upon insanity. But the mental emotion and depression in these instances probably acts intermediately on the mind by its morbific agency on the body. I have only seen one instance of late years attributable to such a primary depressing mental cause, and in this case the urine was as highly albuminous as it is usually found in puerperal convulsions. The history of the patient was in various respects most painful and unusual. A lady came from a distance of several hundred miles to be under my care here at her accouchement. She brought an unmarried sister with her as a companion. A few days after my patient was confined, this unmarried sister told her that she had got an urgent letter to run up to London to see a sick relative there who was very ill; and she went off hurriedly and almost abruptly on this pretended mission of mercy. Within a week Dr. Weir asked me to visit with him a patient who had come in during labour into the maternity hospital, suffering under acute puerperal mania, and who raved at times of a relative who appeared to be a patient of mine. On going to the hospital I found the unhappy unmarried sister of my patient. The attack of insanity in her, though probably excited by the terrible predicament in which she found herself involved, was still a mania attended, if not preceded, by albuminuria. The urine was still very highly coagulable when I first saw her, and this morbid state had been already ascertained to exist some days previously. There is still another form of mental aberration, sometimes spoken of by authors as a kind of puerperal mania—viz. where delirium occurs, as

8. *A Complication of Inflammatory Diseases in the Puerperal State.*—To this variety of mental disorder, which is no real form of puerperal mania, I refer now merely to warn you against the error of supposing that puerperal mania itself depends on any inflammatory affection of the brain or its membranes. Meningitis or phrenitis may come to be set up in any case of puerperal mania, and to diminish in no small degree the patient's danger; but, as was first clearly pointed out by Dr. Gooch, there is no necessary connection between the two forms of disease, and even their association in any case is but a rare coincidence.

I need not occupy your time with any lengthened remarks regarding the

SEMEIOLOGY OF THE DISEASE.

The forms which insanity usually assumes in the puerperal female are those of mania and melancholia — most frequently the former. But there is nothing special in the character or symptoms of puerperal insanity as distinguished from other forms of insanity. The symptoms, when the disease is established, are simply those of common mania or common melancholia, or of some intermediate type of mental disorder. Before the attack the patient is usually for a time restless and irritable, and does not sleep. If you have a puerperal patient complaining of great or total want of sleep, watch her narrowly and anxiously; for she may speedily lapse into insanity. All the more if she have any known hereditary tendency to the disease. If, in addition to this wakefulness, you discover the urine to be albuminous, the probability of insanity impending over her becómes only the greater. The first suspicious symptom of the actual disease generally consists in some oddity of thought, or of expression, or of affection. I lately saw a case in the country where the patient's insanity began with her insisting upon her doctor, at one of his visits, baptizing her infant. She is markedly different in some of these points from what she is naturally. She begins betimes to utter nonsense, or to talk very volubly, and falls at last into a state of complete delirium, when, unless she be constantly watched, she may make some unhappy attempt on her own or another's life. Or, again, the patient may begin by being low-spirited and dull, refusing her food, and taking no interest in her offspring, or even showing an aversion to it; she takes an unreasonable and unnatural dislike to her husband, her nurse, or her medical attendant: or harbours peculiar suspicions regarding them or regarding her food, fearing that she is to be poisoned or otherwise killed, and gradually settles down into a state of confirmed melancholia. The remarks I have to make regarding the prospect of the patient's recovery, and the means of treating the disease, I must reserve for another opportunity.

LECTURE XXXVI.

ON PUERPERAL MANIA—ITS PROGNOSIS AND TREATMENT. PUERPERAL HYPOCHONDRIASIS.

PROGNOSIS.

GENTLEMEN—There are two kinds of danger in puerperal mania; and the prognosis in regard to each individual case of the disease is founded on two classes of symptoms. These two dangers are—1st, Danger to the patient's life; and, 2d, Danger to the patient's reason, or, in other words, the chance of her speedy or ultimate restoration to a state of sanity.

As far as regards impending danger to the patient's life, you have to found your prognosis on that point principally upon the amount of vascular excitement which accompanies the attack. In most acute diseases, and in the most dangerous stages of those that are not essentially acute, our prognosis is generally regulated by the same circumstance—the amount, namely, of vascular excitement that is present, as ascertained by the rapidity and state of the pulse. When, as students and young practitioners of medicine, you require to report upon any case of puerperal or surgical fever, or any other type of acute disease to an old and experienced physician, you will generally find that, while he listens with complacency to your detail of all the symptoms that may be present, he is always specially anxious to know the rate of your patient's pulse, because on it he specially founds his ideas of the patient's state of relative safety or danger. An acute disease with a pulse not above 90 or 100 is seldom attended with danger to life. The same disease in another case, though some of the concomitant symptoms may appear less severe, if connected with a pulse running up to 120, 130, or more, is never unattended with danger to life. The same pathological law holds particularly true with regard to the prognosis in puerperal insanity. In those cases of this malady where the pulse becomes very rapid, life as well as reason is in danger, and the probability of a fatal issue is great almost in proportion to the rapidity of the pulse.

These are the cases of acute puerperal mania which sometimes end fatally in a few days. Dr. Gooch adverts to this matter of prognosis in such terms as will perhaps impress the fact more powerfully upon your memory than any words which I could employ. In his essay on Puerperal Insanity, after quoting a passage from the manuscript copies of Dr. William Hunter's lectures, to the effect that when patients are affected with puerperal mania, "attended with fever like paraphrenitis, they will in all probability die," Dr. Gooch goes on to relate the following instructive history:—"One evening," says he, "several years ago, a surgeon called on me wishing me to return with him many miles into the country to see his wife, who had become maniacal a few days after her delivery. I was at that time attending a lady in her first labour, whom I could not leave; but I offered to go with him if he would wait till the labour was over. It was going on wearily, there was no prospect of its being over before the morning; and as he was anxious to return home, he took another physician whom I recommended. Before leaving me, however, he said he should like to talk with me about the case. I took down a volume of Dr. William Hunter's manuscript lectures, and showed him the passage which I have quoted above. He said he was sorry to read it, for that his wife's pulse was very rapid. About a week afterwards I heard that she was dead."

Allow me to qualify these remarks with one observation. It is, I believe, quite true, that if your patient is affected with puerperal mania in any form, but without the pulse being high and excited, there is little or no danger whatever to her life, whatever danger there may be to her reason. But every case of puerperal mania complicated with a rapid pulse is not necessarily a disease so very fatal in its tendencies as Dr. Hunter's and Dr. Gooch's words might lead some of you to infer. In practice you will find that occasionally cases attended by a rapid and irritable pulse do get quite well; and when such patients recover, their convalescence to sanity and perfect health is sometimes, I think, more rapid than in cases in which there is no vascular excitement attendant upon the disease. In short, you have great reason to fear a fatal result in puerperal mania, if, along with the mania, the patient's pulse is extremely rapid; but you are not by any means to despair at once and entirely of the recovery of such cases. I have repeatedly seen perfect and speedy recovery follow under these circumstances.

When, however, the vascular excitement subsides, and the bodily health becomes restored, without, however, the sanity of the patient becoming restored also; and in cases, again, where, from the first, there is much mental, with little or no bodily disturbance—in all such cases, I say, though there may be, and is, no danger, to life, there is danger to the patient's reason, and the state of insanity is likely to continue for some period. Your patient may be raving wildly in the most alarming paroxysms of violent excitement, or hopelessly sunk in the most apathetic melancholy; the disease may have lasted only a week or a month, or may be of much longer duration; but so long as the pulse does not rise above 100, there is no immediate danger to her life. How long insanity, however, will continue, it will be impossible for you to foretell. You cannot predetermine its duration. Puerperal insanity assuredly often terminates in a few days, or within a week or two; and even when it passes this period, and the patient requires, in consequence, removal from her friends, you can always give them the comforting assurance that more frequently here than in almost any other form of insanity, delusions are dispelled, and the mental powers ultimately recovered. My own impression is, that about two out of every three patients recover perfectly before six months have elapsed. Others only recover after a more prolonged illness. A considerable number remain ever afterwards in a state of chronic or permanent insanity.

TREATMENT OF PUERPERAL MANIA.

The question of the greatest importance and interest in relation to this, as to most other forms of disease, is that which concerns its treatment; and here you will find the treatment of the disease to vary according as you see the patient: 1st, When the symptoms first begin to show themselves, and the patient is labouring under an acute attack; or, 2dly, After the earlier and more acute symptoms have subsided, and the disease has assumed a more chronic form.

I have sometimes wondered what the practitioners of the olden times did with their patients when they were the victims of chronic or subacute insanity. Of asylums, certainly, there were few or none. In Dugdale's *Monasticon Anglicanum* there is a long list of hundreds of hospitals in England in the mediæval times. Some of these hospitals were for the reception of patients afflicted with leprosy, and other forms of disease; some for the old and debilitated; others were for the entertainment of the benighted traveller, and for security against wild beasts—so, at least, the charters state. Several years ago, when searching through this long list, I found only one hospital—and that an extremely small one—in all England, for the reception of lunatics. It would be a curious subject for some writer to inquire into the fate of lunatics in these ancient times; and various data exist that would aid him in such a purpose. We know, perhaps, a little more of what was done in these olden days with acute cases of insanity; for the modes which they used then for the management of these cases continued to be used in Wales and the Highlands of Scotland up to a comparatively late period; the medical science and medical lore of one period having become, after a succession of ages, the so-called folk-lore and superstitious usages of times nearer our own. Up to the end of the last century patients attacked with insanity, of a puerperal or other kinds, were occasionally dipped in lakes and wells, and left bound in the neighbouring church for a night. Loch Maree, in Ross-shire, and St. Fillan's Pool, in Perthshire, were places in which such unfortunate patients were frequently dipped. Herad, in his *Journey through Scotland*, in the last century, states that it was affirmed that two hundred invalids were carried annually to St. Fillan's, for the cure of various diseases, but principally of insanity. The proceedings at this famous pool were in such cases an imitation of the old Greek and Roman worship of Æsculapius. Patients consulting the Æsculapian priest were purified, first of all, by bathing in some sacred well; and then having been allowed to enter into and sleep in his temple, the god, or rather some priest of the god, came in the darkness of the night and told them what treatment they were to adopt. The poor lunatics brought to St. Fillan's were, in the same way, first purified by being bathed in his pool, and then laid bound in the neighbouring church during the subsequent night. If they were found loose in the morning, a full recovery was confidently looked for, but the cure remained doubtful when they were found at morning dawn still bound. I was lately informed by the Rev. Mr. Stewart, of Killin, that in one of the last cases so treated—and that only a few years ago—the patient was found sane in the morning and unbound; a dead relative, according to the patient's own account, having entered the church during the night and loosened her both from the ropes that bound her body and the delusions that warped her mind. It was a system of treatment by mystery and terrorism that might have made some sane persons insane; and hence, perhaps, conversely, some insane persons sane. Mr. Pennant tells us that at Llandegla, in Wales, where similar rites were performed for the cure of insanity—viz. purification in the sacred well and forced detention of the patient for a night in the church, under the communion-table—the lunatics or their friends were obliged to leave a cock in the church if he were a male, and a hen if she were a female—an additional circumstance in proof of the Æsculapian type of the superstition. But perhaps, after all, the whole is a medical or mythological belief, older than Greece or Rome, and which was common to the whole Aryan or Indo-European race in Asia before they sent off westward over Europe those successive waves of population that formed the nations of the Celt and Teuton, of the Goth, and Greek, and Latin. The cock is still occasionally sacrificed in the Highlands for the cure of epilepsy and convulsions. A patient of mine found one, a few years ago, deposited in a hole in the kitchen floor; the animal having been killed and laid down at the spot where a child had, two or three days previously, fallen down in a fit of convulsions. Other methods were followed in the cure of mania of a less violent character than the orgies of St. Fillan's, or the dragging of the poor patient at a boat's tail around the Island of Loch Maree. In the oldest piece of Scottish history that is extant—viz. *The Life of St. Columba*, by Adamnan—a well that was used as a curative means by the Druids, and various medical superstitions, are mentioned. Among others the blessing of a charmed stone by St. Columba is related. The water in which this stone was immersed, when drunk by a patient, cured all kinds of diseases, except death from old age. It was more potent than all the remedies in all our pharmacopœias. At least, one might believe so, if the rapidity with which it restored to health the Druid of King Brude could be credited. Several such potent charmed stones and amulets have had a great reputation in Scotland: as the Lee-penny—the "Talisman" of Sir Walter Scott—for which the family of Lockhart were offered £6000 in the seventeenth century, by the magistrates of Newcastle, in consequence of its supposed efficacy in the cure of the plague; the curing-stone of the Campbells of Glenlyon, and the standard-stone (*Clach-ná-Bratach*) of the Chief of Struan, entailed as strictly as his lands, and which the chief himself must dip in water, or otherwise the curative power of the crystal is not evolved. In the Antiquarian Museum here is a slice of ivory which formerly belonged to the old house of Barbreck, in Argyleshire. Drinking the water in which "Barbreck's Bone" was dipped was long believed in the Western Highlands to be an infallible remedy for insanity. We have a very old report of a case of puerperal insanity, which happened some six centuries ago, at Musselburgh, in the neighbourhood of Edinburgh; you will find it recorded in Reginald of Durham's account of the Life and Miracles of Goderic, the celebrated hermit-saint of Finchale, in the county of Durham. This patient had borne twins, and in a fit of puerperal insanity had destroyed one of the children, and nearly killed the other. The disease was attended, apparently, with daily paroxysms or exacerbations. Reginald tells us that she was led to various sacred spots in Scotland celebrated for the cure of this malady, but she was never completely cured till she visited the hermitage and grave of St. Goderic. You will find that he is alleged to have cured other patients, upon whom a pilgrimage to St. Andrews and elsewhere had produced no salutary effect. All this occurred, as I have said, many centuries ago—for the saint during his life got a present of two bovates of land in the Lothians from King Malcolm the Fourth, a prince who began to reign about the middle of the twelfth century. St. Goderic interfered in the cure of other obstetric maladies besides puerperal insanity. A visit to his hermitage is said to have immediately brought on labour in a person where pregnancy had been protracted for some twelve months or more. The wife of Henry of Pencaitland, in East Lothian, had lost three children by abortion or premature labour: the husband visited the saint at Finchale, who prescribed the wearing of a charmed girdle around his wife's waist during pregnancy. This girdle had the alleged power, like the similar girdles of St. Waltheof and St. Augustine, of utterly preventing all mishaps during utero-gestation; and subsequently, of course, the Scottish matron bore her lord a large family. But it is time, and far more than time, that we should hurry on to the consideration of our more modern notions of the treatment of puerperal insanity.

A. TREATMENT AT THE ONSET OF THE DISEASE.

1. *Bleeding.*—At one time the almost universal rule in this, as in so many other forms of disease, was to begin the treatment by a more or less copious venesection. All our ideas in regard to this measure are undergoing, as you well know, a perfect revolution. But even before the ideas of medical men regarding the value of venesection in other maladies had begun to change, Esquirol and other authorities on the subject of insanity had pointed out that in

the treatment of puerperal mania it was useless, or even injurious. Further experience has only served to show that bleeding is actually injurious in this kind of disease; and that patients who have been bled do not recover so readily as those who have not. You can easily understand how this should be so, when I anticipate an observation I shall afterwards have to treat of, and tell you that in the chronic stages of the malady it becomes almost always necessary to feed up the patient, and endeavour by all means to restore the vigour of her constitution; and this indication is always more difficult of fulfilment in those cases where the patient's vital powers have been to some extent reduced by a copious venesection. I would have you, then, strictly avoid bleeding any woman who happens to become the subject of puerperal mania, merely because she is insane. If there be any condition under which this rule may ever be infringed, and a partial bleeding permitted, it will be in the case of those patients in whom the symptoms lead you to fear that some inflammatory condition of the brain or its membranes coincides with the mental derangement; but such complications are assuredly extremely rare.

2. *Vascular Sedatives.*—Bleeding is too severe a measure to be employed in any case of simple puerperal mania; but where there is great excitement, and the pulse perhaps is high, it comes to be an empirical indication of no small importance to fulfil, to reduce the excitement and quiet the exaggerated action of the heart and vascular system. Various medicinal agents may be employed with this view, such as antimony or ipecacuanha, in depressing doses; or one or two drops of tincture of aconite—or of the tincture of veratrum viride—may be administered. While thus bringing powerful depriments or sedatives to act on the central organs of circulation, external derivatives may be applied to the more distant set of blood-vessels by the application of heat to the extremities; or by tying a bandage round one of the limbs, so as to keep a large quantity of blood for a time out of circulation, thus producing all the effect of a series of large cupping-glasses. Cold applied, in the form of a douche, to the head, or to the whole body, has a powerfully depressing action, and may sometimes be employed. But not only are the general excitement and the irritability of the vascular system to be subdued, we must also endeavour to counteract, as far as possible, the super-polarity that exists in the nervous system by the administration of the various

3. *Nervous Sedatives.*—Of these camphor was the remedy most

frequently employed by Dr. Gooch in the treatment of puerperal mania; and you will do well to have it in recollection as a remedy that may sometimes prove serviceable. Opium is beneficial in some cases. In others it proves of no avail. You may remember that, in my last lecture, I called your attention particularly to the great degree of wakefulness that sometimes precedes the attack; and, bearing that in mind, you will see that in some cases it may prove of great service to administer to the patient an anodyne which shall counteract her restlessness, and send her off to sleep. But it is often as difficult to get a patient to sleep who is threatened with an attack of puerperal mania as it is to put to sleep a patient with commencing *delirium tremens*—sometimes even more so. A patient threatened with *delirium tremens*, as you know, usually feels sleep stealing over him in sixty or seventy hours after the commencement of the attack, whether he has got opium or not; but a patient with commencing puerperal mania may remain restless and wakeful for several days and nights before the excitability begins to subside. When once the patient does fall into a good sound sleep, however, her case becomes more hopeful, and the probability is that she will waken up tolerably well. This kind of sleep it must be your endeavour to promote or procure. If the patient is not so violent as to forbid the use of a warm bath, and such a bath be at hand, it sometimes acts as an excellent anodyne in this disease. Medicines are oftener used for the fulfilment of this indication; and I have seen some cases where an attack of mania has been cut short by a good full opiate administered with this view. The great difficulty is to get the patient to take the medicine. Sometimes she is too mad to swallow it, and too outrageous to be controlled. Whatever may be the way in which you give the drug, remember always, as the grand rule to guide you in its administration to such patients, that it must be given in very large doses. If you expect to have any good effect from it, you must give in general not less than two or three grains of solid opium, or an equivalent dose of some of the cognate preparations. You may give it by the mouth, or in the form of an enema; or when the patient cannot or will not swallow, and will not admit of an injection, you may succeed in introducing the drug in the form of a suppository into the rectum. A suppository containing half-a-grain, or a grain, of morphia is one of the most convenient and efficacious means of administering an opiate, especially for the relief of pelvic or abdominal pains in cases where the stomach is too irritable to tolerate any other preparation of the medicine. But to produce any effect on a patient threatened with puerperal mania, you will require to use a suppository containing perhaps one or two grains of the morphia. Some years ago I was sent for to see a lady about forty miles from Edinburgh, the second wife of a gentleman whose first wife had died of puerperal mania. The lady whom I had come to see was still in the stage of restlessness, had been chattering continually for some days, and refused to take any kind of medicine, or to admit of the administration of opium in any form. She recognised me when I entered her room, and rebelled at once, declaring she would have none of my remedies. With some little management, however, I succeeded in passing into the rectum a suppository with two grains of morphia, with this result, that in an hour or so she fell asleep, and after sleeping about sixteen hours she woke up well, and had no recurrence of her maniacal symptoms. In some cases you may get the patient to sleep by bringing her under the influence of ether or chloroform. I have sometimes found that a patient, after being anæsthetised by means of chloroform, has continued to sleep on, and has afterwards wakened up quite well. More frequently, however, she awakes in the same state as when she went to sleep—no better, but also with no aggravation of the symptoms. In all cases, therefore, where such remedies are not contra-indicated, you ought to give the patient the chance of recovery offered by the use of opium or chloroform. In using the chloroform, you must see to have the patient fairly anæsthetised and fully asleep; and you must either remain with the patient, or have some competent person beside her, to keep up the anæsthetic condition, by making her inhale a fresh quantity of the drug whenever she gives signs of awaking, as she is likely to do every half-hour or so. In some cases, as I have shown you, you may expect by this kind of treatment to cut short an attack of the disease. I have known the remedy successful in several instances, producing at once a cure. But this happy result, alas! does not follow in many. In nine cases out of ten, after the patient recovers from the influence of the narcotic or the anæsthetic, the symptoms recur, and the malady continues its progress unchecked. In these—the large majority of cases—therefore, you must seek to combat the disease by other means.

4. *Specifics.*—It is a fair subject of inquiry whether some kind of specific may not be discovered for the cure of puerperal mania. It may be long before chemists find out for us the nature of the morbific agent on which so many of the symptoms seem to depend;

but if such could be found, its antidote, or some kind of remedy which would counteract it or expel it from the system, might also be discovered. Or a specific may yet be found out which may cure puerperal mania as certainly, though as inexplicably, as quinine cures ague. As yet, however, we possess no such specific. And in the meantime, not knowing even what we have to fight, we must content ourselves at first with administering nervous sedatives in the way I have explained, and afterwards attempting to clear the system of any noxious agencies by means of

5. *Depurants.*—If the stomach be overloaded, or have in it some indigestible matters, it may be well at the outset to administer an *Emetic.* The administration of an emetic has been said, indeed, sometimes to effect a cure; but although I have seen it frequently tried, I certainly never saw a cure result from making the patient vomit. *Purgatives* may be employed, perhaps, with a more hopeful prospect. The bowels are sometimes apt to be loaded, and their evacuation affords the patient much relief, and tends to allay her irritability. Moreover, the accumulation of offensive matters in the intestinal canal seems occasionally, though very rarely, to keep up the maniacal condition after the disease would otherwise subside. Dr. Gooch has recorded the history of a very interesting case of some standing, in which the administration of an active aperient "procured a very large evacuation, nearly black, and horribly offensive," which was followed by a second stool "of prodigious size;" and immediately the patient became calm and sensible, and soon recovered completely. Such a rapid recovery, of course, you must not expect to see oftener than once in some hundreds of cases. But you must bear it in mind, and when in any case the foul, furred tongue, the heavy breath, and the constipation of the bowels, give token of an accumulation of fecal matter in the intestinal canal, you must not hesitate to give an active purge, so as to produce a full and free evacuation. It may alleviate in some degree the patient's symptoms, and excessive irritability, although it will not cure her disease. By means, then, of the narcotics, sedatives, purgatives, and other remedial agents to which I have been alluding, you will succeed usually in moderating the violence of the attack, and sometimes in arresting the disease altogether at its commencement. But when these fail, or only partially succeed, you must be prepared to put in practice some kind of

B. TREATMENT AFTER THE DISEASE HAS BECOME ESTABLISHED.

1. *Nutrition.*—When the first outbreak of the disease is over, and the patient has subsided into a more quiescent condition, she is usually very much depressed, the pulse is weak, and the whole system low, and evidently requiring to be stimulated and supported. Almost every patient, indeed, who has been for some days, or weeks, or months, the subject of puerperal mania, requires to be well fed, to be allowed a good, full, nourishing diet, and even sometimes to be put upon wine or other stimulants. In some cases it becomes a matter of no small difficulty to get the patient persuaded to swallow even the smallest modicum of food; but it is always to be regarded as a hopeful symptom when she can be got to take it willingly. The late Dr. Malcolm, Physician to the large Asylum at Perth,—and there were few men in the profession better qualified to give an opinion on this subject than he was,—told me that in all his long experience he never lost a patient from puerperal mania who had once been persuaded to swallow some food. And I have frequently had an opportunity of observing how well such patients recover when once they begin to take an adequate amount of food, and are properly nourished, and when the system gets out of the chlorotic or anæmic condition in which in such cases it frequently is said. At an early period, therefore, you must direct your earnest efforts towards having the patient nourished by a due supply of good food, and where the patient refuses to take it willingly, means must be taken to introduce it into the system either in the form of a clyster, or far better still, regularly, through a stomach-tube. My friend Dr. Scott, of Musselburgh, lately fed with the stomach-tube, for six weeks, a patient who was the subject of puerperal mania, and who refused all nourishment. She subsequently recovered perfectly.

2. *Attendance.*—A patient who is the subject of puerperal mania requires to be constantly watched and tended; and it sometimes happens that among her own relatives one may be found capable of undertaking her management. But in the usual run of cases you will not feel yourself secure in trusting such patients to the care of their friends, and you will do well to place over her some trained or experienced nurse who is duly qualified to take charge of her and to follow out all your directions. So far as intercourse with the patient's friends, indeed, is concerned, it is usually best, at least in the first instance, to have her entirely separated from them, and to allow of no direct communication whatever. At a later stage of the

disease, when delusions begin to lose their predominance, and the mental processes to return to their natural course, it sometimes expedites her recovery to allow the patient to have an interview with her husband, her family, or her other relatives; but, while the disease is still acute and the delusions strong, the sight even of those with whom she is in daily communion sometimes has the effect of producing an aggravation of her paroxysms. Hence, as I have said, it is best, when the patient is much excited, to have her secluded from all her friends.

3. *Confinement.*—After the patient has been ill for a week or two, it becomes a serious and anxious question how far she is to be subjected to restraint, and whether she should be kept at home or sent off to an asylum. In most cases it is of no use, and will do more harm than good, to put the patient under any personal restraint. If she remains at home, she must be well watched and tended, and kept sedulously free from all forms of excitement. It is generally, unless the fit is very severe, not advisable to send her off at once to an asylum: there is a strong feeling against it in the minds of the patient's relatives, and, however mad she may be, she has usually sense enough to be able to know and understand what you intend to do with her, and the mental emotion that results might act injuriously on the progress of her disease. Under such circumstances, I believe you will do your patient more good by sending her to some cottage at a distance from home, under the charge of a good nurse, who will watch and attend her, and keep her secluded from all society, and in the most perfect quiet. You will find Esquirol and other writers of experience in this subject, stating that patients affected with puerperal mania frequently recover more rapidly when they are sent to live or travel at a distance from home, than under any kind of treatment carried out among scenes and circumstances to which they are habituated. But there are cases where the maniacal symptoms from the first are so marked and violent, and others where, after every means has been tried without much effect, and the patient has settled into a kind of chronic mania, you will act the kindest part to the patient and the patient's friends by recommending her to be placed in an asylum; and in such cases this recommendation will sometimes be followed with the happiest results. I was once in charge here of a patient from the west of Scotland, in whom the disease had taken this form, that she thought every nurse who was placed in charge of her put poison into everything she had to take, and who was in some

danger of starvation from her steady refusal to take food, which she always thought to be poisoned. This lady, after living in a cottage for some months with nurses and attendants, was at last sent into our asylum at Morningside; and in ten days afterwards she was completely recovered. She was allowed to converse at will with the other inmates, and in her case it happened, as it has happened with others, that intercourse with the insane happily served to dissipate her own insane ideas.

4. *Restoration of the Menstrual Function.*—An indication of great importance, which you will require sometimes to attend to in the treatment of patients affected with this disease, is to bring back the catamenial discharge. Some patients continue to be more or less deranged until the menses return; and I have once or twice seen them remain in this condition until, by the application of nitrate of silver to the interior of the uterus, the discharge was fairly re-established.

PUERPERAL HYPOCHONDRIASIS.—TINCTURE OF ACTEA.

Before closing these observations, allow me to direct your attention for a minute or two to a morbidly depressed state of mind which you will sometimes meet with in practice, weeks or months after the patient has been confined. When a patient has been much pulled down by hemorrhage, or becomes exhausted by nursing, a state of anæmia or chlorosis, attended by more or less mental depression, want of energy, and loss of memory, particularly of proper names, will supervene, requiring the administration of an improved diet, wine and tonics, such as iron and quinine. But occasionally an analogous degree of mental misery and depression comes on without any preceding hemorrhage, and when the mother has not acted as a nurse at all. These cases are generally cured by the tonic means I have just alluded to; by change of air and scene, when that is practicable; and in some obstinate instances, where these measures fail, you will find Dr. Seymour's plan of steadily giving an adequate opiate every night, to be a mode of treatment followed by the best results. Of this type of disease I lately saw a very marked case that had utterly defied all the proposed modes of treatment, and that yielded at last with a rapidity which astonished both the patient and myself, under the use of the tincture of the black snakeroot or actea. This plant, the *Actea* or *Cimicifuga racemosa*, has been long spoken of as a remedy for rheumatism, and particularly in the more acute forms of the disease. In the edition of Gray's *Supplement to the Pharmacopœias*, published in 1821, you will find the use of it in rheumatism stated. Latterly it has been employed by some American physicians as their most valuable remedy in acute rheumatic fever. My very intelligent and excellent friend Dr. Voris, of Rochelle, New York, told me, two years ago, that since employing the tincture of actea in rheumatic fever—and it is a very common disease in his district—he had seen the disease almost always cut short before the eighth or tenth day; the drug acting apparently as a simple antidote to the rheumatic poison, and curing without diuresis, diaphoresis, or any other discharge. The American physicians give a strong tincture of the root in acute rheumatism in doses of thirty to sixty drops every two, three, or four hours. It may be given, if you choose, along with alkaline salts, or other anti-rheumatic drugs. I have found it, in my own case, repeatedly cure an attack of lumbago with wonderful rapidity. Some of the American practitioners who have written upon actea, have spoken of its use in terms that are, no doubt, exaggerated. Thus, Dr. Davis, of Chicago, says that, after much experience, he has no more doubt of the efficacy of actea in the early stage of acute rheumatism, than he has of the power of vaccination as a preventive of small-pox. But our American brethren have used actea also extensively in chorea and other anomalous forms of nervous disease. However unlike rheumatism and chorea may look to the superficial observer, yet the able investigations of Dr. Begbie and other pathologists have shown, as you are aware, an analogy, if not an identity, between the blood-poison which produces rheumatism and that which produces chorea. Dr. Physick, of New York, and Dr. Jesse Young, of Pennsylvania, about thirty or more years ago, recommended actea strongly in chorea. Latterly, Drs. Lindsay, Kirkbride, Otto, and others, have published their experience in favour of the same drug in this disease. In a case of anomalous and severe chorea of long standing, which was under my care some months ago, the actea was given with excellent effect. The patient had been previously treated, both in France and in this country, with zinc, iron, arsenic, and all the usual remedies employed in this malady. But I have made all this long episode regarding the actea, not so much to speak of its use in the preceding diseases, as of its use in puerperal hypochondriasis and depression. A lady, the mother of several children, was twice the subject of the most painful mental despondency a month or two after delivery. On one of these occasions she was confined in London, and had the advice of several eminent physicians; bu the disease took a very long and tiresome course, seemed to defy entirely all remedies, and gradually and very slowly terminated On the last occasion on which the attack occurred, this patient wa confined under my care here, and went home to England some week subsequently, perfectly well. She returned, however, in about a month to Edinburgh, in the lowest possible state of depression, a perfect picture of mental misery and unhappiness. I tried many plans to raise her out of this dark and gloomy state. All failed At last, fancying, from some of her symptoms and complaints, tha there might be a rheumatic element in the affection, I ordered he fifty drops of tincture of actea thrice a day. After taking one dos she refused to continue it, as the drug had a taste so similar t laudanum, and as all opiates had always made her worse. On being re-assured that there was no opiate in the medicine, she re commenced it, without any faith, however, in the results, as sh had in a great measure lost faith in all remedial means. When saw her next, some eight or ten days afterwards, she was altere and changed in a marvellous degree, but all for the better. On th third or fourth day, as she informed me, the cloud of misery whic had been darkening her existence suddenly began to dissolve an dispel; and in a day or two more she felt perfectly herself agai in gaiety, spirits, and energy. But nothing would induce her t give up the actea for six or eight weeks longer; and the last tim she passed through Edinburgh she told me that she had prescribe her own remedy to more than one melancholic subject with nearly a great success as she had used it in her own case. Will it be of u in many such instances? I know not. But *nous verrons.*

LECTURE XXXVII.

ON SUB-INVOLUTION OF THE UTERUS AFTER DELIVERY.

GENTLEMEN—I have seen this morning a case of a peculiar form of uterine hypertrophy, to which I beg you will allow me to take this opportunity of directing your attention. The patient in this instance is a lady from America, who has suffered from disordered menstruation, and a feeling of weight and great discomfort in the pelvis, since the birth of her last child. She has, in short, most of the rational symptoms of a fibroid tumour of the uterus; but, on making a physical examination, I found there was no bruit over the uterus, while that organ was equably enlarged to about the size of a uterus in the third month of pregnancy, and readily admitted a sound to the extent of between three and a half and four inches into its interior. Now, although I am not aware that any of the older authors have pointed out particularly this peculiar form of uterine enlargement, yet I am sure it is not at all uncommon. There are at present in our ward in the Hospital two patients who are the subjects of this disease, and in both of whom the hypertrophy of the uterus is complicated, as it not unfrequently is, with retroversion of the organ. Let me read to you the history of these two cases as they have been briefly drawn up by the Clinical Clerk, Mr. Gooding:—

CASE I.—Margaret R., aged 22, married, was admitted on October 19, 1860. Five months after the patient's marriage, which took place in March 1856, she had a miscarriage; the child lived three hours. Six months and a half after this she was again prematurely delivered of a child, which survived its birth only a quarter of an hour; both of these miscarriages she attributes to over-exertion. She again became pregnant, and experienced, at about the same time the previous miscarriages had occurred, symptoms threatening the loss of the fœtus. She was attended by a medical man, who enforced rest. After remaining in bed three weeks, these symptoms passed off; and in May 1859, she was delivered at the full time, after an easy labour, of a male child, which, however, only lived sixteen days. The lochia ceased in three days, but was followed by a yellow discharge, from the continuance of which, and the existence of disagreeable sensations in the epigastrium, and general debility, she applied to Dr. A. R. Simpson, under whose treatment she regained her health, and continued in good health till March, and in April last she was again seen by Dr. Simpson, who found her pregnant; with ulceration of the os and retroversion of the uterus. Two months after, she lost another fœtus, at about the sixth and a half month of gestation. In two weeks she menstruated. In consequence of her feeble state of health, she went into the country; during her stay there she menstruated profusely for nine days. Only once since this, about ten weeks ago, she menstruated one day.

State on Admission.—The patient was very weak and nervous. She complains of occasional pains about the chest, and has a slight cough. She also complains of weight and uneasiness in the pelvis, with a feeling of bearing down at "the back passage." There is frequent desire to go to stool, and a feeling of something being left after rising. At times there is a yellow discharge from the rectum. Micturition is more often performed than usual. The uterus is much enlarged and retroverted, pressing on the rectum, and lying low in the pelvis. The os is directed anteriorly, and the uterine sound enters easily for more than three inches.

I need not trouble you with any further detailed account of her treatment, and of her progress during her residence in the Hospital, but I shall content myself with merely stating that the condition of the womb has undergone a marked change for the better, for it has become reduced to the normal size; and although still retroverted to some extent, yet it has become so far righted in its position, that the patient experiences no discomfort so long as she wears a vaginal pessary, of the peculiar form that I shall afterwards have occasion to describe to you.

CASE II.—Agnes R., aged 27, married, was admitted on November 20 into the Royal Infirmary. The patient states that since her marriage, which took place six years ago, she has had two children, and one abortion, which occurred eighteen months ago, at the second month of gestation. She has not been pregnant since that time. She had enjoyed good health previous to the occurrence of the abortion; on the fifth day after which she had rigors, and in a day or two pain in the hypogastric region, and in the back and loins. On the eighth day, when she arose from bed, she found she could not walk without great difficulty, and when seated could rise only with great suffering. In a short time the severity of these symptoms abated, but ever since she has experienced similar pains in a less degree. The menstrual function is regularly performed. In the intervals between menstruation there is a slight leucorrhœa. She has for a long time been obliged to pass her water much more frequently than before. There is a slight amount of pain when at stool, otherwise the bowels are unaffected. The uterus is retroverted and considerably enlarged; the uterine sound passing only with the point directed backwards towards the promontory of the sacrum, and entering at once to an extent of nearly three inches.

Both of these patients, then, are suffering from enlargement of the womb, consequent on an arrest of the retrograde metamorphosis that normally occurs in that organ after parturition. I have, I repeat, seen many cases where this form of uterine hypertrophy existed to a greater or less extent, and I assure you, you will find the subject of sufficient scientific interest, and sufficient practical importance, to demand for it your most careful study and attention. Let me tell you briefly what is

THE PATHOLOGICAL NATURE OF THE DISEASE.

After parturition, as you are aware, the greatly enlarged uterus begins regularly to involve or absorb, and rapidly diminishes in size, till it has been reduced almost to its pristine dimensions. I have had occasion, in another department of our course, to call your attention to the wonderful changes that go on in the uterus in consequence of impregnation, and to tell you how, from being a small body, two or three inches long, it comes, in the short space of nine months, to attain the length of a foot or more, while it is correspondingly enlarged in all its other dimensions and diameters. And I may here repeat the conviction that I then expressed, that if ever the laws of nutrition are to be clearly made out, the inquiry will probably be most successfully pursued by investigating these laws as they are seen in operation on a large and gigantic scale in this very organ; for in no other organ, so far as I remember, do we ever see nutrition and growth going on so rapidly as here, where out of a mere mass of nucleated fibres and cells an enormous body of numerous and well-marked muscular fibres become developed within the course of the nine months of pregnancy. Hardly less wonderful than this great development of the uterine walls during the progress of gestation, is the still more sudden diminution that occurs in these walls after parturition has been completed. The muscular fibres—perhaps weakened and exhausted as a result of their violent action during the parturient process, and so rendered prone to degenerate—and deprived also, to some degree, of the supply of blood brought to them so profusely during the time that the uterine circulation was so much exaggerated, now undergo, after parturition, a fatty metamorphosis, in consequence of which they almost all melt down and disappear; so that in the brief space of five or six weeks the whole organ dwindles down, and diminishes to

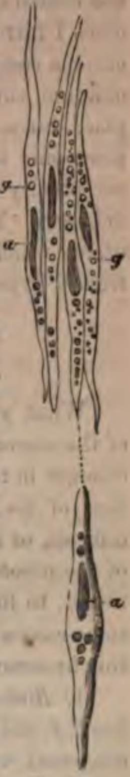


Fig. 97.

Fig. 97. Muscular fibre-cells of the uterus three weeks after delivery; four of them treated with acetic acid and pale. *a*, Their nuclei; *g*, fatty particles in them. Magnified 35. *Kölliker*.

nearly its original dimensions. The muscular walls of the uterus are not absorbed as muscle, but, like many other effete structures, they first undergo fatty degeneration, and are absorbed as fat. This fatty degeneration commences on the inner layers of the walls, and passes from them to the outer layers. The fatty metamorphosis of the uterine muscular fibres appears under the microscope, a few days after delivery, as a series of glistening particles deposited in the course of each individual fibre. Now the patients, with whose cases I introduced my present observations, are suffering from this curious condition of the uterus, that after the birth of their last children, this retrograde metamorphosis of the uterus has not taken place during the puerperal month, or rather, let me say, has taken place only to such an imperfect degree that the uterus is of the size we usually see it have at the end of the first week or so after delivery. They are suffering, then, from a hypertrophy of the uterus which is pathological in its permanency, but which results from a hypertrophy purely physiological in its origin.

ITS ETIOLOGY.

What, you will be ready to ask, is the cause of this enlargement of the uterus remaining permanently? How is it that the retrograde changes in the uterus become arrested, and the absorption or involution of its walls is prevented? To these questions it would be difficult, or indeed impossible, with our present limited knowledge of the processes of development and degeneration that go on in the uterus, to furnish a satisfactory reply, but let me point out to you some causes which occasionally appear to lead to the production of this hypertrophy from arrested involution of the uterus.

1. *Rising too soon after Confinement.*—We know that both in the healthy and in the morbid state the uterus is apt to become more congested when the patient assumes the erect position, and that a morbid degree of congestion interferes with various physiological functions. And we can easily imagine that if a delicate woman gets up too soon after her delivery, and remains for a lengthened period erect, while the womb is still more than usually large, the circulation in its walls might get so impeded, and such an amount of congestion be produced, as would prevent the normal changes in its walls, and impede the free absorption of its disintegrated particles.

2. *Repeated Miscarriages.*—However it may be, we know, further, that in a number of cases an enlarged condition of the uterus, of the

same nature as that of which I am speaking, results from the frequent and rapid recurrence of a series of miscarriages or abortions in the same patient. You are aware that a woman who has once aborted is extremely liable again to abort at the same period whenever she again becomes pregnant. In such cases it is, moreover, remarkable that the patient often conceives again in a very short time after the occurrence of the abortion ; and when this process has been several times repeated—the uterus undergoing the enlargement of a new pregnancy, before it has had time, as it were, to recover perfectly from the hypertrophy of a preceding one, the case sometimes ends in a complete disturbance of the normal physiological process of degeneration and diminution in the uterine walls ; and the womb is left in a permanently hypertrophied condition.

3. *Metritis.*—Again, if you inquire minutely into the history of patients affected with this form of disease, and ask them particularly as to whether anything has gone wrong with them in their puerperal state, you will very frequently find, as in the case of the second of our Hospital patients, that within a short time after their confinement they have been the subject of an attack of inflammation in the uterus or ovaries, or neighbouring pelvic organs. They will, perhaps, tell you that a week or two after their child was born they had a shivering, followed by pain in the region of the womb and more or less fever, which compelled them to remain in bed for some time. It would appear as if the occurrence of metritis, or perimetritis, in the puerperal female, exerted such an influence on the substance of the uterus as to prevent the occurrence of those changes that lead normally to its diminution in size.

ITS SEMEIOLOGY.

The patient whom I have imagined you to be questioning as to the history of her malady, will probably tell you, further, that, after she had recovered so far from her inflammatory attack, and from the consequences of the bleeding and blistering to which she had been subjected for its cure, as to be able to walk about again, she began to be conscious of a feeling of discomfort in the lower part of the abdomen, to which she had never before been accustomed. There is frequently a sense of weight or bearing down of the uterus, of distress in the lower bowel, and of uneasiness in connection with the action of the bladder, and a weakness, sometimes amounting to actual pain, in the lower part of the back, and, in some cases, a numbness of the lower limbs, which are all new to the patient. She attributes, most likely, these feelings to weakness, and expects that as she gains more strength the uneasy sensations will disappear. But some months may elapse, and she begins to be disappointed at her never getting entirely relieved of this local trouble; and after lactation is accomplished, if, indeed, she have been able to nurse her child at all, she finds that her menses do not return regularly, or become too profuse and painful. Leucorrhœa, too, is sometimes present to a greater or less extent; and altogether the patient is in a state of confirmed and anomalous bad health that is difficult of endurance. By means, perchance, of tonics and sedatives she strives to regain her health and alleviate her uneasiness, and continues for a time to hope that her former strength will still return, and that her ailments will disappear. Gradually, however, the conviction becomes forced upon her that something besides time will be needful for her cure, and that some kind of medical treatment is required for her relief. Accordingly she comes to you, and when you have heard a history such as that I have endeavoured to narrate, you come to the conclusion that she is labouring under some disease of the uterus. But what the precise nature of that disease is you will not be able to fix and determine by studying the mere history of the symptoms. To make out a correct differential diagnosis, you must institute an examination of the uterus.

Its Physical Diagnosis.

On placing the hand over the abdomen, you can usually feel the enlarged uterus rising in the form of a tumour out of the pelvic cavity, and lying above the pubes, more especially in those cases where the hypertrophy is very considerable. In all cases you can discover, on making an examination per vaginam, that the vaginal portion of the cervix uteri is enlarged,—for this is a form of hypertrophy in which every part of the organ is implicated; and you find the whole uterus to be unusually large and heavy. This kind of local examination is, in the majority of cases, most satisfactorily carried out when the patient is laid on her back; sometimes it is more convenient to have her placed somewhat laterally. But in every instance of this kind you must bear in mind the importance of making an examination with *both* hands simultaneously,—the forefinger of one hand being employed to explore the uterus through the vagina, while the fingers of the other are applied to the fundus through the medium of the anterior abdominal wall. There is, perhaps, no variety of uterine disease in the diagnosis of which this sort of examination can be employed to more purpose than in the case of simple enlargement of the organ. In a few patients the abdominal walls are too thick to admit of your feeling anything very distinctly on palpation; and there are others, still fewer in number, in whom a certain degree of uneasiness renders the necessary pressure painful to the patient. When you have thus got the uterus between the two hands, you can easily recognise the existence of the hypertrophy, and even determine the degree to which it has taken place. You can feel that the swelling is not due to the presence of fibroid masses in the walls of the uterus, for there is no irregularity and no peculiarity in its shape. It has unmistakably the shape and contour of the healthy organ; it is only that organ in a state of equable hypertrophy. Such a condition of matters might still, however, possibly be due to the presence of a fibroid tumour growing from the submucous layers of the uterine wall, and projecting into its interior; and to make sure that there is no such tumour present, you must have recourse to another simple means of exploration, viz. the introduction of a uterine sound. The cavity of the healthy uterus measures usually, as you know, about two and a half inches in length; and when the sound is introduced, you find its point is arrested at the fundus, when the knob placed on the convex side of the instrument, at two and a half inches from the extremity, has reached the level of the external orifice of the uterus. Where the organ is enlarged, however, the knob I speak of slips past the guiding finger, and the instrument runs up into the interior to a depth of three or more inches; and when the enlargement of the uterus is of the kind I have been describing as dependent on defective involution of the organ after delivery or miscarriage, the instrument usually slips in at once without the slightest difficulty, for the uterine orifice and canal are preternaturally patent. When, on the other hand, the enlargement is due to the presence of a tumour in the cavity of the uterus, the point of the exploring instrument usually meets an obstruction immediately on traversing the canal of the cervix, and it may require, in such a case, the exercise of some skill and a little gentle manipulation in order to pass it into the interior of the uterus at all. Besides, after the sound has been fully introduced, you can often feel with it the projecting body; while in the case of the simply hypertrophied organ the sound passes freely and unobstructedly round in all directions. If with the sound thus introduced into its interior, you raise the uterus towards the hand placed over the abdomen, you will be able to make out more distinctly and definitely than ever the real nature of the case. There is one difficulty in connection with the use of the sound in such cases, of which I ought, perhaps, to warn you, and it is this:—The great weight of the fundus of the uterus, sometimes aided by inflammatory adhesions, gives a strong tendency to various displacements of the organ, and more particularly to retroflexion of it. Such a complication you must, accordingly, be prepared to expect; and in passing the sound you must then remember to turn it with the point and concavity looking backwards towards the sacral promontory. It was not long after I had begun to make use of the sound in the diagnosis of uterine diseases and disorders, that I first fell in with and recognised a case of sub-involution of the uterus. The patient, whom I saw in consultation along with the late Dr. Abercrombie, was the wife of a medical gentleman, and there was much perplexity as to the nature of her disease. There was a large, rounded tumour lying over into the right iliac region, which was thought to be possibly either an inflamed ovarian tumour, or an abscess, as there was considerable pain on pressure. On passing a sound, however, it was found to run right up at once about four inches into the very centre and top of the tumour. The supposed tumour was thus shown to be neither more nor less than the uterus considerably enlarged and turned somewhat to one side, as sometimes happens in such cases. That was the first occasion, so far as I know, in which this kind of uterine hypertrophy was clearly made out; but since then I have seen it very frequently, usually as a result of inflammation after delivery, but sometimes associated with repeated miscarriages in the relation both of cause and effect.

ITS DURATION AND DEGREE.

In some cases you will detect the form of uterine hypertrophy which I am describing, within two or three weeks or two or three months after delivery. These may be called the acute, or subacute, types of the disease. But oftener perhaps in practice you will not be applied to till the disease is chronic—till many months, or even years, have elapsed since the date of the last delivery, or of the last abortion, which left the uterus in the sub-involved or unreduced condition which we are considering. The degree or amount of remaining enlargement varies infinitely in different cases; and is, perhaps, mainly regulated by the date of the confinement at which the arrest of the uterine involution takes place, and the completeness or not of that arrestment. I have seen instances where the uterus was large enough to be felt some inches above the pubis, and where the uterine sound passed into the uterine cavity to the extent of four or five inches. In other examples you will find the uterus in form and length remaining hypertrophied only to a slight extent, and the sound passing perhaps not more than two and three-fourths of an inch or three inches. Between these two extremes, you will meet in practice with all intermediate degrees of this permanence of the puerperal hypertrophy of the uterus.

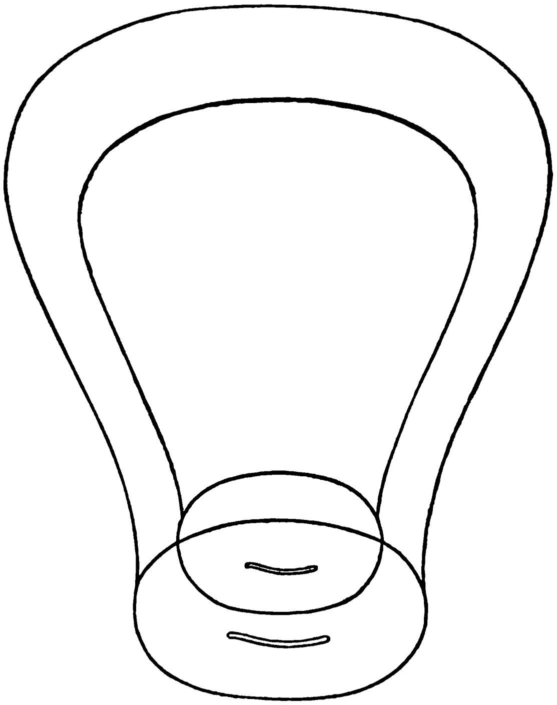


Fig. 98.

TREATMENT OF THE DISEASE.

In the more acute forms of the disease, I have almost invariably found that by the immediate employment of local antiphlogistics

Fig. 98. Sketches in outline of the uterus in its normal and in its hypertrophied conditions.

the symptoms were speedily and successfully alleviated, a
process of absorption was set up. Where any traces of infl
tion still remain, the importance of this indication is at o
parent, and its fulfilment is in most cases attended with rapi
But even in cases where all inflammatory action seems to ha
out, and only its results remain, we often find—I cannot w
you how—that a local antiphlogistic course of treatment
effect of setting up absorption in the enlarged organ, and
ultimately to its restoration to its normal state. In followi
this line of treatment, then, you will do well—if the patient
very weak and debilitated—to begin with the application o
or a dozen leeches to the vaginal portion of the uterus, or si
the perineum, or circle of the anus. I need hardly repeat, t
abstraction of a small quantity of blood in this way will b
particularly called for, and more especially beneficial, in thos
where there lingers any degree of congestion or of inflam
action in the uterus. But even in such acute or subacute
and in all the more chronic forms, your chief reliance m
placed on the use of counter-irritants applied externally to t
face of the abdomen or sacrum. You may use antimonial or
ointments, or paint the hypogastric surface twice a day with
tincture of iodine, till the skin becomes tender; but the ve
which I have found to be most efficacious in exciting the func
absorption in the womb that is now in abeyance, is the or
cantharides-blister, especially in the chronic forms of the d
and when the bladder is not liable to be irritated. You may
a series of small blistering-plasters to be applied for a time ov
lower part of the abdomen, or you may paint a succession of
spots—one every second or third day—with blistering liquid
the uterus begins distinctly to diminish in size. I think yo
find the latter mode of applying the vesicant to be the simple
the most certain. The plan I usually follow is to apply the fl
a patch of about the size of a crown, and then gradually to sur
this patch with a number of others of like diameter, one
added every third or fourth day, until the original central poi
been surrounded by a ring of five or six distinct blistered spot
the same time that you are thus trying to excite absorption b
application of counter-irritants to the cutaneous surface, you
endeavour to promote this object by keeping the vaginal porti
the cervix uteri immersed constantly in ointments of mercu
iodide of lead, or bromide of potassium, or other remedies lik

have the effect of stimulating the absorptive process. This you can do by introducing, or making the patient herself introduce, into the vagina one or two pessaries medicated with these substances every night and morning.

But you will find that these local measures are not always, or in most cases, sufficient to effect a cure. You will be obliged to have recourse also to the internal administration of some of the class of deobstruent remedies; and, of these, the most efficacious are the iodide and bromide of potassium. I used, at one time, to rely chiefly on the administration of the iodide of potassium. But of late I have employed the bromide much more extensively, for it has this advantage over the former salt, that its use may be kept up for almost any length of time by a patient without her becoming subject to the kind of marasmus which we sometimes find attendant on the prolonged use of the iodide. The bromide of potassium may not only be given with safety for a lengthened period, but it may be administered with confidence as a good tonic, as well as perhaps the best deobstruent in the Pharmacopœia. It may be depended upon as an active stimulant to absorption, besides possessing the property, beyond all other remedies that I know of, of acting as a special sedative on the reproductive organs. In cases of this kind you must administer it in larger doses than usual, making the patient take six, eight, or ten grains of it three times a day. Sometimes patients suffering from this form of uterine hypertrophy present themselves to you in a debilitated and anæmic condition. Under such circumstances, you need not hesitate to add iron, manganese, or some form of metallic tonic, alone or in combination, to the more specific remedies, and endeavour, always in the more chronic cases of the disease, by means of good diet and other hygienic means, to raise the patient's general standard of health.

You will occasionally meet with cases of this disease so obstinate, that the process of absorption does not begin, or does not go on to any satisfactory degree, even after you have had recourse to repeated leechings, and have kept the uterus imbedded for a length of time in discutient ointments, and have duly administered all kinds of deobstruents and tonics. In such cases you may follow up the course of treatment which I have sketched for a very lengthened period without producing any appreciable change in the size of the womb, or any marked alleviation of the patient's symptoms. If, however, by any means you can induce the uterus for a time to take on an action of increased growth, you may confidently hope that this temporary hypertrophy will be followed by a process of tion, which will go on, perhaps uninterruptedly, until the c reduced to its normal dimensions. Such a transient increas size of the uterus you may at any time produce by taking ad of the physiological tendency of this organ to enlarge and developed around any foreign body that happens to be lodge in it. You know that the uterus begins to enlarge when sti by the presence of an ovum, or of a fibroid tumour, or of a blood, in its interior; and in like manner it becomes devel size when a foreign body, such as a sponge-tent or an intra bougie, is introduced artificially. By introducing, then, a su of very small sponge-tents into the interior of the womb making the patient wear for a time an intra-uterine pessary, cause the uterus to take on this hypertrophic action; and b wards actively and fully taking advantage of the tendency organ to undergo a process of degeneration and diminution removal of the stimulus, you may succeed, by the due empl of the various discutients and deobstruents I have already men —as rest, counter-irritation, and bromine,—in promoting the of absorption to such a degree that the uterus at last beco duced to the natural standard. In some obstinate instances been obliged to repeat from time to time this process of a irritation and dilatation before a perfect cure was effected.

LECTURE XXXVIII.

ON SUPER-INVOLUTION OF THE UTERUS AND AMENORRHŒA.

GENTLEMEN—In my last lecture I directed your attention to the morbid condition of the uterus which results from an arrest of the retrograde metamorphosis that usually takes place in that organ subsequent to delivery. I explained to you how, from the occurrence of inflammation in the uterus or its appendages, the intermediate process of fatty degeneration, by means of which it becomes reduced to its normal dimensions, after parturition, sometimes becomes interrupted; and how the organ may thus be left in a condition of permanent puerperal hypertrophy; and how, in such cases, you might be able to afford your patient the most effectual relief, I tried also to explain to you.

To-day I propose to direct your attention to a morbid state of the uterus which is precisely the opposite of that to which I refer, and which is produced when the disintegrating process that is set up after delivery goes on to such an excessive degree, as to reduce the organ to a size decidedly below its normal dimensions in the unimpregnated condition. The hypertrophy resulting from a defective degree of degeneration and diminution of the womb, or *sub-involution*, is, as I told you, one of the most common of uterine disorders. The atrophy that results from excessive resorptive action in the uterus, or *super-involution*, is, on the other hand, a phenomenon of comparative rarity; but that it does ever and anon occur, is a matter as to which there can be no dispute. I have seen in practice a very considerable number of cases of this morbid state; but I have rarely had opportunities of examining into its nature on the dead subject. Several years ago I published the history of a case of this kind occurring in a young woman of twenty years of age, who never menstruated after her first delivery, and where the morbid condition in question was traced, both during life and after death. It was two years subsequent to her confinement that this patient sought admission to our clinical ward, in consequence of amenorrhœa and great constitutional debility. She was then subject to various distressing symptoms in connection with the pelvic organs, and stated that she was subject to frequent attacks of diarrhœa, which she believed to be most severe at recurring monthly intervals; the dejections being then sometimes tinged with blood. The mammæ were shrunk and flat; and she was thin, feeble, and anæmic in appearance. On making a vaginal examination, I found the uterus small and mobile, the cervix uteri much atrophied, and its vaginal portion scarcely forming any projection into the cavity of the vagina. The os uteri was so contracted as to admit with difficulty a surgeon's probe. It was dilated by a slender bougie left in it for a few days, and when the sound was subsequently introduced, the uterine cavity was found to be only an inch and a half in length. Various remedial measures were adopted without any very marked effect; and as the uterine symptoms seemed to be only of secondary importance, she was transferred to another ward, where she died in the course of a couple of months in a state of prolonged coma. During her stay in the hospital she suffered from frequent, and sometimes severe attacks of diarrhœa, and about a month before her death, albuminuria and general dropsy had set in. At the post-mortem examination crude tubercules were found in both lungs. The liver was enlarged, and showed fatty degeneration. The kidneys presented also some stearoid degeneration; and in the right there was a small tubercular abscess. The large intestines were very much thickened in their parietes, and contracted in their calibre; their mucous membrane was ulcerated in various parts. At the lower end of the ileum several large ulcerations were seen running circumferentially around the interior of the bowels. One or two ulcerations were also found in the stomach. The uterus (see Fig. 99) was very small, and atrophied in its length and breadth; its size being diminished about a third below the natural standard in all its measurements, and its parietes were correspondingly thin and reduced. The whole length of the uterine cavity, from the os to the fundus, was not more than one inch and a half, instead of two inches and a half as in the normal condition. When a section was made of the posterior wall of the organ, the thickness of its parietes at their deepest or most developed portion was not above three lines, instead of five or six. The tissue of the uterus appeared dense and fibrous. The ovaries were also much atrophied, and smaller than natural; their tissue was dense and fibrous, and pre-

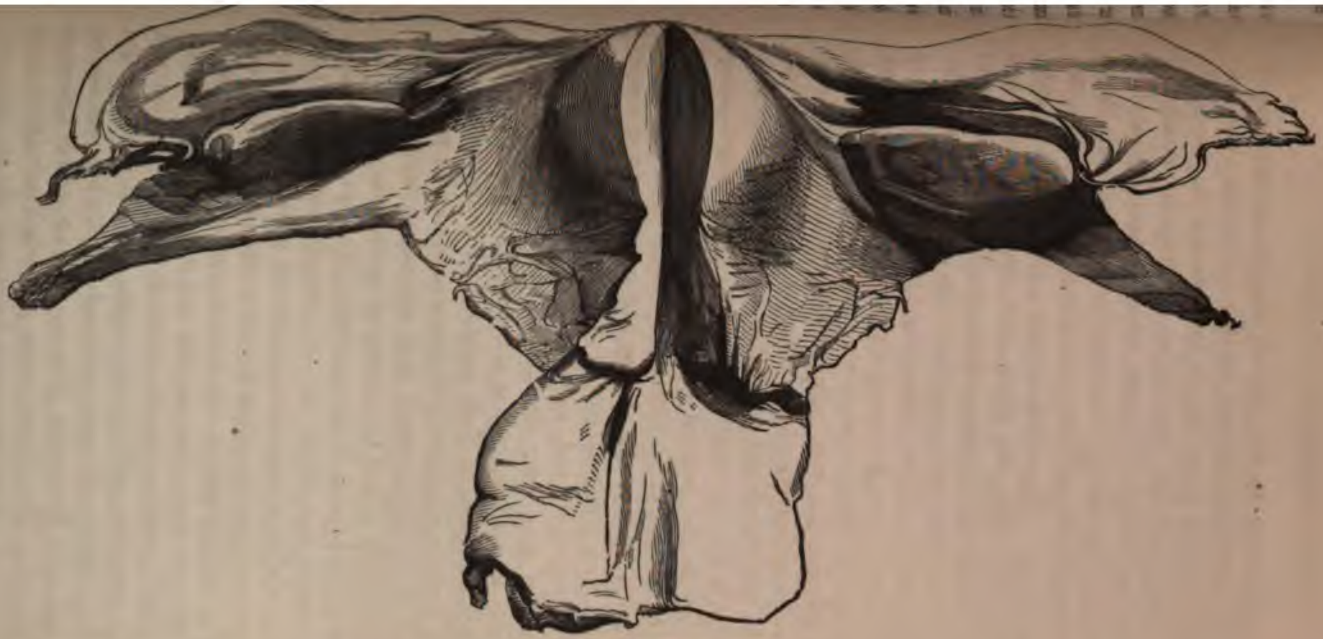


Fig. 99.

Fig. 99. Sketch of the internal organs of generation from a patient who died with super-involution of the uterus. The woodcut presents the uterus and upper part of the vagina, the broad ligaments and ovaries of the exact size which they presented; and their degree of atrophy may be easily judged of by comparing the sketch with the same parts when of the normal size. The sketch represents the posterior surface of the uterus and broad ligaments, with the uterine cavity exposed to show the diminished thickness of the walls of the viscus. The whole parts represented in the woodcut weighed only one ounce, four drachms, twenty-five grains, in apothecaries' weight.

sented no appearance of Graafian vesicles. There was no inflammatory deposit on the peritoneal surface of the uterus or its appendages; but there was some thick pus, or tubercular matter in the distended cavity of the right Fallopian tube.

In this case we have evidence of the most unmistakable kind that the uterus of a woman, in whom all the genital apparatus was so perfectly developed as to allow of her giving birth to a fully-formed child, became atrophied to such a degree, subsequently to her delivery, as to be incapable of again resuming its functional activity. How this excessive wasting of the womb is produced it is difficult to understand. Remembering that when inflammation is going on in any organ or tissue, the function of absorption is there in abeyance, we can understand how the process of absorption after delivery should be checked in the uterus by the occurrence of inflammation in its walls; and how in such a case the womb should be left in a permanently hypertrophied condition, when the absorptive action is not subsequently re-excited. We can even imagine that interruption to the free flow of blood through the uterine vessels, resulting from the patient getting up too soon after her confinement, should lead to a certain degree of congestion in the uterus, and should so far interfere with the process of absorption as to leave the organ in a state of abnormal hypertrophy. But we do not yet know enough of the normal process of involution of the uterus; the reason why the fatty metamorphosis and the subsequent absorption go on exactly to such a point that the uterus is restored almost precisely to its previous dimensions, has not been sufficiently elucidated to enable us to form any probable idea as to the causes which lead to its super-involution and permanent atrophy. Observations even are wanting to show whether this atrophy of the uterus depends upon a morbid degeneration and destruction of fibres that ought to have remained entire; or, as is more probably the case, on some defect in the development of the new cells and fibres that should have taken the place of those that had become effete. A uterus, which has undergone this morbid change, is found after death, as I have said, to be abnormally small. Instead of measureing two and a half inches or so in length, and one and a quarter in breadth, it is seen to possess little more than a half or two-thirds of those dimensions; and this diminution in size affects, not only the body and fundus, but the cervix as well, so that, instead of projecting into the vault of the vagina, the os uteri seems simply to form a depression in the upper extremity of that canal. The walls of the uterus are at the same time extremely thin—hardly thicker, in extreme cases, than the coats of the intestines, and so friable as to be readily perforated by the point of a sound incautiously introduced. The whole organ, in short, presents all the appearance of the uterus of a girl not yet arrived at puberty; and differs from it only in this, that whereas the latter is in a condition to become enlarged, and to furnish the ordinary menstrual secretion so soon as a sufficient stimulus shall have been applied to it in consequence of the changes connected with ovulation, the super-involuted uterus has undergone such morbid alteration as renders it unable any longer to respond to the ordinary ovarian influences. And here, again, arises an interesting question in regard to this subject, which it remains for future histological research and pathological experiment to answer—viz. What is the cause of this insensibility of the super-involuted uterus to the reflex irritation which seems to be conveyed towards it from the ovaries at each menstrual period? Is it merely that the muscular fibres of the uterus have been so degraded and destroyed as to be insusceptible to the stimulus that usually calls them into functional activity? Or have the nervous filaments that traverse the uterine walls also shared to such an extent in the general atrophy as to be incapable of conducting the influence they ought to convey to the structures in which they ramify? Or have the uterine vessels been so wasted as to furnish an insufficient supply of blood? Or, finally, are the ovaries themselves in a perfectly normal condition, or have they, too, become morbidly altered in structure and impaired in function as a consequence of their intimate association with the diseased and degenerated uterus? These are all questions to which we are at present unable to furnish any adequate reply; but they offer such a tempting field for investigation that I trust some one will ere long try to discover their solution. Meanwhile, let us see what peculiar phenomena result from this morbid condition of the uterus and the means by which it may be recognised. Let us study, in other words,

The Symptoms and Diagnosis of the Disease.

The symptom that in most cases first alarms the patient, and which generally induces her to seek your aid, is the continued suppression, or very small and imperfect amount, of the menstrual discharge. Formerly, in all probability, she used to menstruate regularly, and when the term of utero-gestation and the period of lactation have been brought to a close, and her child has been weaned, she wonders why the usual monthly flow does not reappear. She is quieted for the moment by the assurance that, in some cases, the recurrence of the catamenia may be retarded for a time without any ultimate disturbance of the general health. But, as months pass on, and no discharge at all, or only a very imperfect degree of it, returns, unfulfilled expectation grows into alarm, and not unreasonably; for now the breasts tend sometimes to shrink and shrivel up, the subcutaneous adipose matter begins to be absorbed, so that the skin looks withered and wrinkled, and the patient, though still, it may be, young in years, offers often prematurely to assume the aspect of age. The whole system usually sympathises with the change that has been effected in the uterus, just as it does in women who have reached the climacteric period, and in whom the uterus normally ceases from all functional activity; and the appearances which are familiar to you as the normal characteristics of women who have passed that period of life, begin to be abnormally presented by the patient in whom the functional powers of the uterus are destroyed, as a consequence of the morbid process that leads to its atrophy. It results, further, from the morbid condition of the womb, and from its inability any longer to perform its normal functions, that the patient becomes henceforth sterile, and the oppressive idea that she will never have any more family comes to be added to the burden of her other troubles. Most frequently, too, she is in a state of marked constitutional ill health; she is very anæmic; her digestive powers are low; she has frequent headaches; is easily fatigued; and is the subject of general debility, and shows often, also, depression and impaired activity of mind.

PHYSICAL DIAGNOSIS.

To ascertain the true state of matters in such a case you must have recourse to a local examination of the uterus itself. On passing the finger into the vagina you feel the cervix uteri unusually small, and quite on a level with the vault of the vagina; or projecting into it so slightly as not to be at once easy of recognition. The womb feels unusually small and light, and movable; and although the abdominal walls may be very thin and relaxed, yet the organ cannot well be felt between the hand placed over the fundus and the finger exploring per vaginam. The os is small and admits only a narrow-pointed sound; or, as in the case I have detailed to you, nothing larger than a surgeon's probe. In introducing the sound great care must be taken not to press it rudely on, for the walls are thin and very friable; and I have seen a sound thus rashly introduced, and forced with but little effort through the uterine parietes into the cavity of the peritoneum. I have known of this accident happening in more than one instance; and although no bad consequence has ever, so far as I am aware, resulted from it, and although the sound may, doubtless, be passed into the peritoneal cavity with impunity, yet it is not an experiment one would willingly and wittingly repeat. When the sound, then, is introduced in such a case with all due amount of caution, its point will be found to be obstructed and stopped when it has passed only to a distance of one and a half or two inches, showing that the organ is preternaturally diminished in size.

Is there anything, you will naturally inquire, that we can do in the way of treatment in this form of disease? Is there any means of restoring the womb to its normal condition, and the patient to the enjoyment of her former good health? I think I can point out to you various measures which you may adopt with benefit to your patient, and sometimes with a good hope of being able to effect for her a perfect cure from her malady. But as the remarks which I have to make in regard to the treatment of this form of disease are equally applicable to the treatment of some cases of amenorrhœa, you must permit me now to endeavour to explain to you the nature of the morbid condition or conditions under which those women labour who are the subjects of

AMENORRHŒA.

You are not to imagine, let me observe, that every woman who is the subject of amenorrhœa is necessarily suffering under some form of disease. During pregnancy and lactation, for example, the menstrual secretion is normally suspended, and the function of the ovaries, so far at least as regards the maturation and separation of the ova, seems at the same time to be in abeyance. We do not understand precisely what is the peculiar state of the system in nursing and pregnant women which leads to the interruption of the functions of the ovaries and uterus; and it is quite possible that in many other cases besides, amenorrhœa may be dependent on some similar constitutional condition, which interferes with the regular ripening and discharge of the ova, although the patient presents no evidence of any special malady. Looking at amenorrhœa, however, as a distinct disease, we find that the forms which it assumes are so various, and the cases of it which come under observation are sometimes so complex, that it is difficult to construct such a classification as shall present all those different forms in their proper natural order, and at the same time enable you to determine the exact position in that series of any case that may hereafter meet you in practice. Dr. Churchill, in his treatise on *The Diseases of Women*, perhaps the best work on that subject in the English, or in any other language, has divided amenorrhœa into two classes, according as, 1st, The menses had never appeared at all (*Emansio Mensium*); or, 2d, the menses had appeared once or oftener, and had afterwards become arrested (*Suppressio Mensium*). Each of these two classes is further divided by him into secondary groups, which in their turn are subdivided. Again, Becquerel describes the disease as being of two kinds—Complete, or Incomplete; while Scanzoni treats of it under the three varieties of Retarded Menstruation, Premature Cessation, and Complete Absence of the Catamenia. But perhaps you will best understand the different forms of the disease, and recognise the special character of individual cases, if I endeavour to describe it to you simply in connection with the various pathological and physiological conditions with which it is usually associated. Thus you may have amenorrhœa—

1. *From Congenital Malformation of the Generative Organs.*—In practice we occasionally meet with cases where the patient has all the symptoms usually associated with the catamenial flow coming on regularly every month, and yet no discharge ever appearing externally. On making a local examination of such a case, we find that the menstrual secretion actually does take place; but that it is hemmed in so as to form a tumour of greater or less size from its accumulation in the vagina and uterus, in consequence of the existence of a strong tough hymen opposing its escape. More rarely the obstruction is due, not to a preternaturally strong hymen, but to a congenital closure of the vaginal canal from organic adhesion of its opposing walls. In such cases the higher organs—the uterus and the ovaries—may be, and usually are, in a perfectly normal condition. But there is another series of cases, where the ovaries and uterus are either altogether absent, or exist only in a rudimentary condition; and where, consequently, the amenorrhœa is due, not to the retention of the fluid secreted within the generative canals, but to the actual non-secretion of the catamenia. The vagina may

then be entirely absent; or it may end in a cul-de-sac, which admits the finger to the depth of one or two inches. The uterus is either completely absent, or is represented only by a small nodule, which can be felt on making an examination per rectum, and pressing against the exploring finger with a sound or catheter introduced into the bladder. But though the absence of the uterus can thus be determined with perfect precision, it is a matter of great difficulty to make out the exact condition of the ovaries; and in such cases we can usually decide as to their presence or absence only by observing whether or not any of those physiological phenomena exist which we believe to be called forth by their agency alone. A case of this kind some of you had an opportunity of studying in a patient who has recently been dismissed from our ward in the Hospital. Let me recall to your recollection the facts of her history as they have been recorded in the Hospital Case-book:—

"J. B., aged 22, married, residing in Edinburgh, was admitted on November 7, 1860. The patient states that at the age of nineteen she experienced pains in the loins and thighs, and shooting pains in the mammæ, the right one enlarging somewhat. On rising from bed one morning, during the time that she was suffering these pains, she found a bloody stain on her night-dress, but she cannot say whether it came from the rectum or not. Thrice during the following two days she vomited blood, and bled at the nose, the whole amount lost being about half a-pint; but there was no discharge from the genital passages. Ever since, up to the time of her marriage, she suffered monthly pains in the loins and breasts, and occasionally vomited blood. About twelve months ago she again noticed a bloody stain on her night-dress.

"In January last, after being courted for eighteen months, she married, never having entertained a suspicion that she was the subject of any malformation of the sexual organs. Both previously to her marriage and since, she has repeatedly experienced sexual desire. Since her marriage she has frequently had bleeding from the nose at the monthly period.

"On examination the vagina is found to be represented by a cul-de-sac about two and a half inches deep: it is conical, so that the blind extremity admits only one finger, while the orifice admits two or three. There is no os uteri or cervix. When examined by the rectum a very small nodule is felt at the end of the cul-de-sac. A sound introduced into the bladder is felt by the finger in the rectum, with only the walls of the rectum and bladder intervening. On making an examination with the left hand through the abdominal wall, and the fore-finger of the right passed into the rectum, the situation usually occupied by the uterus is felt to be perfectly empty. The mammæ are fully developed. The voice is quite like that of a woman. There is no trace of hair about the chin. She is of middle stature, with dark hair and eyes, and fair skin.

"*November* 19.—For the last two days she passed blood from the rectum, on several occasions during each day. This was accompanied by the usual uneasiness attending menstruation. On pressing firmly into the iliac region, a dull pain was experienced. The discharge of blood from the rectum, as well as the pains, ceased this morning, and she states that, as usual, she feels 'lighter' than for the few days previously.

"*December* 13.—An attempt to dilate the canal by an air-pessary has been repeatedly made, but no appreciable expansion has been effected. Two or three days ago, at the usual period, she again for two days discharged blood from the rectum. She was dismissed, by request, to-day."

In the case of this unfortunate woman, the results of the physical examination hardly leave a doubt as to the complete absence of the uterus; while the monthly recurrence of the vicarious hemorrhages, with their attendant symptoms, and the declared existence of a sexual appetite, seem as clearly to indicate the existence and the action of the ovaries. Last year I had under my care a lady who presented the same kind of defective development of the uterus and vagina, but who at one time deluded herself and her doctor into the belief that she had become impregnated. In her the vaginal cul-de-sac was even shorter than in the case of our Hospital patient, but there was a greater thickness of tissue to be felt between the bladder and the rectum. In the hope of discovering a rudimentary uterus imbedded in this tissue, I made an incision into it to the depth of about two inches. No trace of the uterus, however, was to be found; but the operation was followed by this good result, that by keeping the cavity of the wound open by means of bougies and sponge-tents until the raw surface had healed, a vaginal canal was produced, where formerly there was only a shallow sinus. In cases of congenital malformation of the generative organs we may, then, have two varieties of amenorrhœa: *First*, One class of cases in which the amenorrhœa is genuine and complete, and in which there is a defective development in the organs essential for the production of the characteristic catamenial discharge; and, *Secondly*, Another class in which the amenorrhœa is only apparent and temporary, the secretion really taking place, but its escape being prevented by an abnormal occlusion of the passages. In the one class of cases all hopes of cure are vain. In the other the function is restored to its normal state by simple incision of the obstructing membrane or dilatation of the occluded canal, a morbid condition upon which, and upon its treatment, I dwelt at some length in a former lecture.

Again, however, you will far more frequently meet in practice with cases of amenorrhœa in young women, where there is no deformity of any kind in the sexual organs, but where the disease results only and merely

2. *From Retarded Menstruation.*—The period at which menstruation first supervenes is not, as you are aware, definitely limited to any one or two years. The great majority of women in this

country begin to menstruate, as shown by Dr. Roberton and others, at from fourteen to sixteen years of age. But in many the discharge appears much earlier, in some even as early as the eleventh year; while in others it may be delayed till a much later period. Young women sometimes become anxious, when they find themselves attaining to nineteen or twenty without becoming unwell like others of their own age; or their mothers may take alarm at the non-appearance of the menses, and bring them to you for advice. In such cases the delay may be the result of some form of constitutional disease; but frequently enough the girl is otherwise perfectly strong and well developed, and you may bid your patient wait in the confident assurance that betimes all will come right with her. Sometimes, indeed, patients have become impregnated without the catamenial discharge having ever appeared in them at all. Where the full development of the menstrual secretion is thus delayed, the patient may present no symptoms of any monthly molimen at all. But in other cases she has all the symptoms that are usually seen in connection with the catamenial flow, and not unfrequently a kind of leucorrhœal discharge takes place at these regular monthly periods, which seems to indicate an attempt on the part of the uterus to furnish the true sanguineous secretion. In all these cases the amenorrhœa is not necessarily of a morbid character, and may be dependent simply on some physiological peculiarity in the patient's constitution. It does not then call for any active line of treatment any more than it does in the next class of cases to which I have to refer, and where the amenorrhœa results

3. *From Premature Cessation of the Menses.*—The time when the menstrual discharge ceases to flow is even less definite than that at which it first appears. For, while most women cease to menstruate from the fortieth to the fiftieth year of life, in some the flow continues later; and in others it may disappear before the age of forty, or even as early as thirty. In most cases in which the catamenial flow becomes arrested at an unusually early period of life, a morbid local or constitutional cause may be discovered. But there still remain a few cases in which this premature cessation of menstruation may be quite healthy and physiological, and altogether unconnected with any pathological condition.

4. *From Constitutional Affections.*—In many morbid states of the constitution in which there is marked and general depression of the vital powers, the functions of the genital organs are apt to be impeded, and the menstrual discharge either fails to appear, or ceases

after it has once existed. In strumous subjects, for example, in whom the process of development goes on but slowly, we find that the catamenial flow is frequently very late in becoming established; and Scanzoni is doubtless very near the mark when he states that in 19 out of 31 scrofulous girls the menses do not appear till the age of 21. We see, further, when pulmonary phthisis begins in such patients, that the menstrual function is often greatly decreased or completely in abeyance for many months, it may be even a year or two, before the disease proves fatal. You will find that in patients with incipient phthisis, there is not unfrequently a kind of menstrual hæmoptysis—the patient beginning to spit blood every month at the date corresponding to that at which the uterine menstrual discharge used to appear; the system attempting, as it were, to relieve itself, by means of the lung, of some portion of that excess of blood of which it was wont to get rid through the uterus. In such cases you may sometimes succeed in restoring the arrested function of that organ, and so in averting the threatened danger to the lungs and the life of your patient, by means which I shall have to describe to you in speaking of the treatment of the disease. Amenorrhœa is, moreover, one of the most constant symptoms seen in connection with that morbid state of the constitution which we designate chlorosis. One of the essential elements of the chlorotic condition of the body, as you are aware, is a greater or less degree of anæmia; and in many cases the diminution in the quantity of the blood, or at least in its coloured corpuscles, becomes so great that it would appear as if the system had none to spare for the uterus to secrete at the usual monthly periods. In such patients the process of ovulation may, and in most cases probably does, go on quite regularly. Graafian vesicles burst at the normal menstrual periods, and discharge their ova through the Fallopian tubes and the uterus; and then there is generally a pale kind of leucorrhœal discharge, which continues for a few days, and is attended with the same kind of local and general disturbance that we see associated with the proper uterine discharge. Either, however, the function of ovulation is so impaired as not to stimulate the uterus sufficiently to throw out its usual secretion; or the supply of blood furnished to the organ is too scanty to allow of the separation of any adequate quantity of it from the circulation. In cases of scrofula, then, and of chlorosis and all forms of anæmia, and in many other cases of disease in which the vital powers are lowered, the menstrual discharge is liable to become retarded or diminished, or may be arrested to a degree amounting to absolute amenorrhœa. But in the great majority of cases amenorrhœa will be found to arise

5. *From Diseases of the Organs of Generation themselves.*—It may result, first of all, from disease

a. Of the Ovaries.—When both ovaries have undergone such a degree of dropsical degeneration as to render them altogether unfit any longer to perform their functions, you can readily understand that there will be no attempt at menstruation and no appearance of any menstrual discharge, in consequence of the want of the stimulus usually resulting from the separation of the ripened ova from the Graafian vesicles. But we often enough see, besides, that amenorrhœa is present when only one ovary is diseased, probably because the pressure produced by the tumour on the other ovary and the uterus interferes with the due performance of their function. In cases of atrophy and other morbid conditions of the ovary we find the same absence of the uterine discharge resulting from the suspension of the ovarian functions. Again, we meet with amenorrhœa in connection with almost every variety of disease

b. Of the Uterus—at one stage or other of its progress.—Thus, when either the uterus itself or the cellular tissue in its neighbourhood becomes the seat of the inflammatory process, the function of the organ usually becomes for a time impeded, and the patient may pass one or more "periods" without showing any appearance of a catamenial discharge. In cases of fibroid tumour of the uterus also, more particularly when they are of the sub-peritoneal variety, the patient is not unfrequently first made aware of the existence of her disease in consequence of the cessation or diminution, for a time, of the usual monthly discharge; and even in cases where the tumours are sub-mucous, and projecting into the cavity, there may be periods of amenorrhœa, alternating with those attacks of menorrhagia which are more characteristic of this variety of tumour, and which are so damaging to the patient's health. Not only in cases of fibroid tumour of the uterus may there be amenorrhœa; it is also sometimes seen in the early stages of cancerous and cancroid degeneration of the organ. In this form of disease, as you know, an excessive and frequently-repeated flow of blood from the womb is often the first warning the patient has of her malady, and this menorrhagia sometimes continues as one of the most constant and depressing symptoms throughout its course. But on making inquiry, you will not unfrequently find that before these draining discharges set in, the patient had for a time been the subject of amenorrhœa, and it may happen that a patient will apply to you on account of amenorrhœa, dependent on incipient carcinomatous disease of the uterus. In cases of sub-involution of the uterus, moreover, such as I described to you in my last lecture, and other kinds of uterine hypertrophy; and, in short, in almost every kind of disorder to which the uterus is liable, its peculiar functions may, for a time, be suspended, and the patient may be the subject of amenorrhœa. But it is most frequently in connection with some form of atrophy of the organ that we find amenorrhœa existing as a permanent and peculiar feature of the disease; and in a very large proportion of cases where patients have been suffering for a lengthened period from diminution or complete suppression of the menstrual flow, the uterus will be found, on examination, to be preternaturally small, whether as a result of that kind of super-involution which I have attempted to describe, or of some other wasting process. Finally, we may have amenorrhœa as a consequence of cicatricial occlusions

c. Of the Vagina.—When labour becomes tedious, and the head of the child remains fixed for a lengthened period in the maternal passages, sloughing of some of the soft parts is apt to ensue, and as a result of the subsequent ulceration and contraction, the vaginal canal may become completely occluded. In such a case, after the period of lactation is ended, the menstrual fluid will be again secreted, provided the obstruction be not complete. But if it be complete, and the vagina has become entirely occluded, then, as in cases of amenorrhœa from preternatural congenital toughness and complete closure by the hymen, no discharge will appear externally, in consequence of the escape of the fluid being prevented by the vaginal obstruction.

LECTURE XXXIX.

ON AMENORRHŒA—(*Continued*).

SEMEIOLOGY OF THE DISEASE.

GENTLEMEN—At my last lecture, as you may remember, I pointed out to you the different morbid conditions of the body generally, and of the sexual system in particular, in connection with which amenorrhœa was apt to become established. In regard to many of these forms of amenorrhœa, I showed you that the suppression or arrest of the menstrual secretion is only a secondary symptom of other more important diseases, while in other instances it forms the main feature of the case, and is often itself apparently the primary source of other secondary morbid changes in the constitution. Let me direct your attention now more particularly to the symptoms of the affection, and the means by which it is to be recognised and remedied.

SYMPTOMATOLOGY OF THE DISEASE.

There are two great classes of symptoms which we shall have to consider in detail :—*First*, Those dependent on the condition of the uterine system ; and *Secondly*, Those dependent on affections of different and distant parts, or on changes in the general constitution of the patient. Let me point out to you

I. THE SYMPTOMS DEPENDENT ON THE CONDITION OF THE UTERINE SYSTEM.

1. *Diminution or Suppression of the Menstrual Secretion.*—Some patients come telling you that they have at one time "altered" quite regularly, but that latterly the discharge has gradually become less, and sometimes interrupted, or that it has entirely ceased to appear. Others again will tell you that they have never seen any discharge at all, and they are distressed because they are not like other women. Or, instead of appearing regularly every three or four weeks, as it ought to do, the period of the recurrence of this

monthly secretion has become changed and irregular, and the patient only menstruates now and then,—every two, three, or four months—without her being able to anticipate the exact date of the discharge. In these cases the catamenial flow is often also greatly diminished in quantity; and its actual discharge is very frequently attended with an unusual amount of pain. In other words, patients often suffer from a certain degree of dysmenorrhœa, before the condition of amenorrhœa becomes fully established.

2. *Loss of Reproductive Power.*—In some cases, it is not till the patient has been married some time, and begins to be disappointed at not falling in the family way, that she comes to consult you in regard to her condition. For, although it sometimes happens that a woman may become pregnant without ever having had any distinct menstrual discharge at all, yet the very reverse of this is what we usually meet with in practice; and you will find, very frequently indeed, that a married woman who suffers from amenorrhœa is, at the same time, childless.

3. *Changes in the Mucous Secretion of the Uterus.*—In cases of amenorrhœa, as I have already stated, we not unfrequently find that a kind of vicarious leucorrhœal discharge takes place at each ordinary menstrual period. We meet with cases, further, in which there is a slight leucorrhœal discharge going on almost constantly, and producing more or less discomfort and distress to the patient. But, besides these dynamical or functional disturbances of the reproductive system, there is, in a number of the more obstinate and chronic cases, some

4. *Physical Change in the Uterus.*—Such a change can, however, only be discovered by making a local examination of the organ. In the unmarried female, you will, of course, rarely or never have occasion to examine the uterus in cases of amenorrhœa; never, indeed, unless the absence or suppression of the discharge actually threatens to interfere gravely with the health and life of the patient. But in the married female, and in the forms of the disease dependent upon imperfect development, or super-involution of the uterus, it is by a local examination only that you can sometimes determine the true character of the case. You may find the uterus normal in development, size, situation, etc.—nothing organically wrong,—but often this negative information is of the greatest importance in regulating your measures of treatment. In some cases you will reach at once the true nature by a local examination, and by thus detecting the undeveloped or atrophied state of the organ. In such

cases, on introducing the finger into the vagina you will find that the uterus, instead of projecting with a longish neck into the cavity, is only to be felt with difficulty, the os forming a kind of depression in the vaginal vault, surrounded by a thin, soft ring of cervix. The whole organ feels as if it were unusually light and mobile, and on pressing with the fingers of the other hand, above the pubes, the fundus cannot be felt through the abdominal walls. The vaginal portion of the uterus is, however, sometimes well formed, and not to be trusted as an indication of the real size of the organ. To determine its true condition, you must introduce a sound into its interior, and this will in most cases enable you to discover that either the os externum or the os internum uteri, or both, are unusually narrow, or that there is some degree of stricture in the canal of the cervix, and more especially that the length of the cavity of the entire organ is decidedly below the natural standard. The uterus measures only one and a half or two inches in length, and is correspondingly small in all its dimensions, soft, thin-walled, and very mobile. The whole organ, in short, remains very much in the undeveloped condition in which it was before the period of puberty; and while, in the rest of the system, all the ordinary changes may have taken place, the mammæ having become rounded and prominent, the hair having grown on the pubes, and the whole body having assumed the condition of *embonpoint*, which marks the attainment of womanhood; the uterus has not undergone its usual changes, but has remained small as it is in the girl, and incapable of performing any of the functions of the normally-developed organ. In other cases, again, as I have already explained to you at some length, a uterus which has once been in a perfect state and capable of performing all its functions, with regard to menstruation and reproduction, may undergo such an excessive degree of absorption or involution after delivery, as to be reduced to the condition of an undeveloped uterus. And, besides those changes in size dependent on defective development, or excessive absorption of the uterus, you must bear in mind that it may be found in cases of amenorrhœa to be altogether absent, or in any of those specifically morbid conditions to which I referred at the close of my last lecture as the occasional causes of a temporary amenorrhœa.

II. Constitutional Symptoms.

Looking only at the general constitutional condition of patients affected with amenorrhœa, we find that they divide themselves into two distinct classes, according as there is in the system an excess or defect of blood, or, at least, of some of its chief constituents.

1. *Plethora.*—Handsome and healthy-looking women may sometimes come to consult you, and you wonder at first sight what such blooming subjects can have to complain of. But soon you learn that they are annoyed because they do not menstruate like other females, and they are distressed at never having fallen in the family-way. They may have no particular kind of suffering, and present, probably, an appearance of uncommonly good health, in consequence of the suppression of the menses being attended with an excessive accumulation of blood in the body, which lends to the patient an aspect more than usually florid and strong. This very healthy aspect of the patient may be the only striking feature in connection with her malady; but in most cases there are superadded some of the other symptoms of which I shall have to speak anon. Patients in this plethoric condition constitute by far the smallest division of those who are the subjects of amenorrhœa. Much more frequently we find them in impaired health, and presenting a greater or less degree of

2. *Chlorosis or Anæmia.*—Whether we regard chlorosis as the cause or as an effect of amenorrhœa, the two diseases are so frequently seen to be associated together, that the presence of the one must always be noted as one of the most common indications of the existtence of the other. When pointing out to you in my last lecture the constitutional diseases that might give rise to amenorrhœa, I spoke of chlorosis as possibly leading to suppression of the catamenia in consequence of the poverty or impaired quality of the blood peculiar to that state of the constitution. But the connection may sometimes be of an altogether different kind. Arrest of the menses may occur, for example, as a result of a sudden chill, of fright, or mental emotion of any kind, or of any other form of nervous shock; and if the disturbance of the generative organs be not speedily quieted, and their normal functions completely restored, a general disorder of the whole system may ere long be produced, characterised by the peculiar pallor, by the anæmic bruits in the heart, and in the large vessels at the root of the neck, and by the headaches, palpitations, neuralgias, and the whole class of symptoms that are looked upon as

distinctive of the chlorotic condition. I have already referr the circumstance, that during pregnancy and lactation the menstrual function of the uterine system is suspended, and I it now for the purpose of stating that it is probably only by in gating the manner in which this inaction of the organs is b about physiologically that we shall ever be ultimately able to tain the cause of its pathological production and persistence. whatever be the nature of the connection between chlorosi amenorrhœa, you can never suppose that you thoroughly unde any case of chlorosis that comes before you in practice, or th have ascertained all the data necessary to guide you to its su ful treatment, until you have made special inquiry into the st the generative system. The presence or absence of amenorrh such a case will materially affect your plan of treatment; and not unfrequently happen that by the skilful and successful em ment of means for restoring the impaired or suspended funct the uterus and ovaries, you may succeed in restoring chlorotic pa to the enjoyment of perfect health, when you could not cure or relieve them by any kind of general constitutional treatment. Pat then, who are the subjects of amenorrhœa are sometimes plethoric, but far more frequently in an anæmic condition of But both classes of them are liable to a series of secondary dis which may be regarded so far as symptomatic of amenorrhœa which can then be cured only by means calculated to resto catamenial flow.

3. *Ulcerations and Vicarious Hemorrhages.*—It sometimes ha with young girls who have just arrived at puberty, that, befo catamenial flow becomes established, a slight discharge of takes place on one or more occasions from the mammæ; an same phenomenon may be observed in cases of amenorrhœa. more frequently, when the system attempts to relieve itself o amount of blood that ought, at the monthly period, to be sepa by the uterus, it is through some other channel that the elimi is effected. There is, in many such cases, a determination of to the lungs; and sometimes, as a consequence, the patie troubled with hemoptysis, which may last for several days; o stomach is the organ affected, and the patient is relieved by a gr or less degree of hematemesis. Occasionally this vicarious h rhage occurs in the form of epistaxis; or, as in the case o patient, whom we had lately in hospital, without any uterus, it give rise to a kind of menstrual dysentery. Again, in pat

suffering from amenorrhœa, sores occasionally become established on the legs, or other parts of the body, of a weak or indolent character, never fairly healing up during the intervals between the monthly periods, but becoming more irritable and vascular at those times, and frequently emitting a sanguinolent discharge. That these hemorrhages, etc., from various organs and parts of the body, are dependent on the suspension of the uterine function is shown by their regular monthly recurrence or aggravation, and by the fact that on the re-establishment of the proper catamenial flow these secondary or symptomatic discharges dry up and disappear.

4. *Acne and other Cutaneous Eruptions.*—Besides being liable to become ulcerated, the skin not unfrequently becomes the seat of other morbid changes in women who are suffering from amenorrhœa. Thus we often enough see such patients become subject to attacks of a kind of erythema or erysipelas, which constantly recurs, and is obstinate and difficult to cure. Still more frequently have I observed, in obstinate cases of amenorrhœa, a severe and distressing form of acne rosacea attacking the face, and which becomes aggravated at each menstrual period. This catamenial acne does not readily yield to any of the applications that are ordinarily successful in removing it, but sometimes disappear at once, as if by magic, on the restoration of the uterine discharge. I have seen more rarely on the face, in other cases of amenorrhœa, a true *impetigo menstrualis.*

5. *Affections of the Nervous System.*—Patients who are suffering from amenorrhœa will almost invariably tell you that they are subject to frequent and severe headaches, which affect chiefly the frontal and temporal regions, and which usually become aggravated at times corresponding to the menstrual period. Even where the disturbance does not amount to absolute pain, they will still complain of an uneasy feeling of weight or heaviness in the head, and of pressure in the orbits. Frequently, moreover, they suffer from intercostal and inframammary pains, and from neuralgiæ in different parts of the body. They sometimes, also, become subject to fits of excitement, which come on most frequently at a menstrual period, and which usually assume a hysterical form, but are at times almost maniacal in character.

6. *Disorder of the Circulation.*—In those cases of amenorrhœa where the suppression of the menstrual secretion occurs in connection with a condition of general anæmia or chlorosis, I need hardly say that you will almost always be able to detect the *bruit de diable* in

the veins at the root of the neck, and very frequently also
murmur at the base of the heart ; and you will often find the
ness of the circulation showing itself also in coldness of t
tremities, and, in some cases, even in a certain degree of ar
above the ankles. But you will find, further, that, even
plethoric form of the disease, the patients are liable to frequ
regularities in the action of the heart, which becomes excited
the slightest exertion. Even after simply eating a meal, palp
of the heart may come on ; for such cases, you must allow
add, are very frequently complicated with some

7. *Disorder of the Intestinal Canal.*—The stomach, as you
readily sympathises with the multiform diseases of the uteri
tem ; and in cases of amenorrhœa, it is not surprising to find tl
patient suffers frequently from sickness, and is almost cons
dyspeptic. This irritable state of the stomach is to be bo
mind in the treatment of the case, as it renders the patient
lerant of some of the remedies which are usually most effect
the cure of the disease, and frequently demands a prelimina
of treatment calculated to restore the intestinal system to a
natural condition. Lastly, patients who are the subjects of an
rhœa are occasionally liable to

8. *Disturbances of Respiration.*—I have already spoken
association of amenorrhœa with phthisis, and the circumsta
which I wish now more particularly to refer is the regular pe
occurrence, in persons suffering from amenorrhœa, of a grea
less amount of dyspnœa, at dates corresponding to those at
the monthly discharge should have taken place. It might su
you to find a symptom of this kind occurring, and occurring
quently as it does, in connection with suppression of the cata
flow. But you must remember that Burdach and other G
physiologists have maintained the view that menstruation is a
of vicarious respiration; a view that looked like a wild G
speculation, until Andral and Gavarret proved by direct ch
experiment that the theory was not utterly groundless.
showed, for example, that the quantity of carbonic acid gas
off by individuals of the two sexes, was nearly equal befor
period of puberty and after the age of child-bearing; whilst fe
during the time when the uterus was in functional activity, bre
out a smaller quantity of the gas than males of a correspondin
During pregnancy, however, when the menstrual flow is susp
and in cases of amenorrhœa, it was found that a larger quant

gas was given off by the lungs, than when there was no pregnancy and the uterus was performing its normal functions. These observations may afford us some clue to the explanation of the circumstance, that in some cases of amenorrhœa, chiefly when dependent on imperfect development of the uterus, we find the patient, instead of menstruating every month, becoming affected with more or less dyspnœa. I have repeatedly seen this catamenial dyspnœa take on the form of severe menstrual asthma. Some years ago, I saw, with Dr. Pagan, one of the best and most daring lady-huntresses in Scotland, labouring under an attack of this "asthma uterinum," and crying out for chloroform to relieve her; and such cases are by no means uncommon. How this symptom may best be combated, and how the disease itself may be most successfully treated, I shall try to show you in my next lecture.

LECTURE XL.

ON AMENORRHŒA—ITS CONSTITUTIONAL, ETC. TREATMENT.

GENTLEMEN—I trust that what I have already said with regard to amenorrhœa has been sufficient to enable you to understand the nature of the disease, and to guide you in recognising the forms of it that may hereafter come under your observation. How you may treat the disease with most hope of success I am now to endeavour to explain to you. But before doing so, allow me to remind you that there are many cases of amenorrhœa where the mere absence of the menses cannot be regarded as morbid, and where, consequently, it requires no kind of medical interference. You will, in practice, often be consulted by anxious and alarmed mothers because the monthly discharge has not begun to appear in one or other of their daughters at the usual age. Their fears you can quiet by the assurance that time alone will cure them, and that there is no necessity for either fear or haste if their health is otherwise good. Again, women of say forty to forty-five years of age will sometimes complain of the premature cessation of the catamenia, though the amenorrhœa is neither the result nor the cause of any morbid condition. In these cases the employment of measures calculated to restore the flow is, of course, not followed by any useful or happy result. In the vast majority of instances, however, you will be obliged to put in practice some course of treatment which may be described as of a threefold character, according as it is calculated to relieve or remedy the attendant symptoms :—1. *Symptomatic* or *Palliative*,—or intended to restore the patient's system to the normal standard of health ; 2. *Systematic* or *Constitutional*,—or directed specially towards the uterine system, with the view of recalling the suppressed discharge ; 3. *Specific ;* or, 4. *Local*, and consisting of means applied to the uterus itself.

A. Symptomatic Treatment.

Many of the secondary symptoms which arise in connection with suppression of the menses are of too slight a character to call for any special treatment, and most of them will disappear during the course of a skilfully and successfully directed plan of specific or local treatment. But some of these symptoms may be occasionally of such a severe and distressing nature as to demand some kind of immediate palliative treatment. Thus you may sometimes be called upon to administer some remedy for the

1. *Relief of the attendant Asthma.*—There are various means that you may employ for the relief of this very rare but distressing complication. Of these, perhaps the readiest and most immediate is the inhalation of chloroform. When you use chloroform in the uterine, as in the other forms of asthma, you do in general not re-

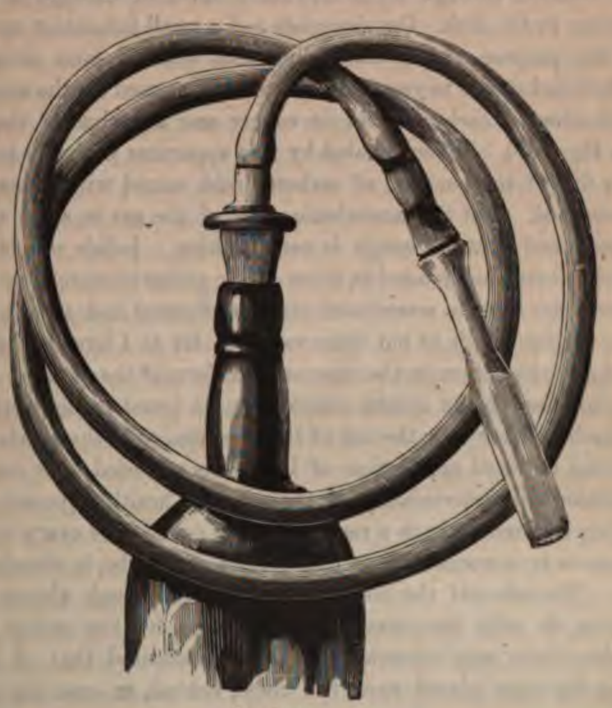


Fig. 100.

Fig. 100. Tube, with glass or china nozzle, for the inhalation of carbonic acid gas.

quire to produce with it any deep degree of anæsthesia. A few drops breathed from the palm of the hand may suffice, and may be repeated several times if necessary, till the dyspnœa is subdued. The patient can be taught to administer the vapour to herself in this manner, without incurring any risk, for dyspnœa, coughing, etc. Occasionally, however, you require to exhibit a much deeper and larger dose before the asthmatic paroxysm is subdued. Again, I have often seen patients suffering from different forms of asthma greatly relieved, and sometimes completely cured of their attacks by being made to breathe carbonic acid gas, developed in an ordinary beer-bottle, from a mixture of equal parts by measure of crystallised bicarbonate of soda and tartaric acid with about a tumblerful of water, and inhaled through an india-rubber tube, or through a narrow opening in the cork. Our druggists sell a small inhalation apparatus for the purpose, closely resembling that which I have already described and shown to you (see Lecture IX.), as used for the anæsthetic application of carbonic acid in cancer and neuralgia of the uterus (see Fig. 100). When inhaled by this apparatus probably not more than five to ten per cent of carbonic acid mixed with common air is breathed. But the anæsthetic effect of the gas in some cases of asthma and irritable cough is very striking. Iodide of potassium, which, when administered in doses of five grains or more three or four times a day, proves sometimes such an effectual and almost specific cure for asthma, is of but little value, so far as I have had occasion to observe its action, in the amenorrhœal form of the disease. A more certain cure for any special attack is to be found in the application of leeches either over the top of the sternum, or to the pelvic region. But the repeated application of leeches is attended with too much depletion and deterioration of the patient's health to permit of our having recourse to such a remedy on the occasion of every attack of dyspnœa in a woman whose constitution, it may be, is already below par. The effect of the bleeding, moreover, although almost always certain, is only temporary; and therefore, for the action of the leeches, there may advantageously be substituted that of two or three dry cups placed over the chest, behind, or over the sacrum. All these measures, however, afford merely temporary relief; and unless some of these direct measures applied to the uterus itself, of which I shall speak anon, for the restoration of the menstrual discharge, be put in practice, you may expect, with almost absolute certainty, that at the return of the next or of some subsequent monthly period there will be a recurrence of the asthma.

2. *Cure of the Neuralgia.*—Pains under the left mamma, in the intercostal spaces, in the sacral region, or in the temples, are, as I have stated to you, among the most constant and clamant symptoms seen in connection with amenorrhœa. To relieve them you may administer some of the various narcotics—a practice, however, that may lead the patient into dangerous habits, and which, therefore, I would earnestly counsel you, as much as possible, to avoid. The use of small doses of arsenic—two drops of Fowler's solution thrice a day—will be of more ultimate benefit to your patient, although not so immediately effectual. Where there is any indication of a rheumatic taint of constitution, you will probably find more satisfactory results from the administration of thirty or forty drops of the tincture of actea racemosa three or four times daily in a little water. Locally, the application of sedative and anæsthetic liniments and plasters occasionally decreases or removes these neuralgic pains. Perhaps the most rapid relief you can give your patient will be by the subcutaneous injection of a watery solution of morphia. She will point to an undefined space, say in the side, as the seat of pain; but if you press carefully with the finger at different spots, you will succeed in touching a point, in most cases immediately under one of the ribs, where pressure causes more acute suffering. If you adopt Dr. Wood's plan of thrusting a fine-pointed syringe through the skin at this spot, and then inject ten or twenty drops of a watery solution of the bimeconate of morphia, equalling the ordinary strength of laudanum, you will in some cases succeed in relieving the pain at once; and if it does return, it will probably be in another nerve, or in another part of the same nerve, whence a repetition of the narcotic injection may possibly again expel it. Latterly, in this subcutaneous injection of morphia, I have usually contented myself by sending the anodyne into any spot at the pained part, without trying to search out for the purpose the supposed site of the principal branch of the neuralgic nerve. In some cases the remedy perfectly succeeds; in others it perfectly fails. And when it does fortunately succeed, the wonder is, not that it acts as a temporary local anæsthetic merely, but that occasionally the pain does not return again after the effect of the opiate has passed away. One of the first cases in which I ever tried this subcutaneous injection was in this respect one of the most successful which I have ever met with. The patient, a young Australian lady, had been suffering severely from the limited pain so often attendant upon deranged uterine health for two years. Many means, I was told, had been

tried for its removal, but all in vain. I injected a few drops of a solution of bimeconate of morphia into the pained part. In five minutes the pain was gone, and has never, I believe, in any degree returned. It had much more the speed and brilliancy of a surgical than of a medical cure. But such instances are rare, very rare. And when you do use this subcutaneous injection, remember to warn your patients that sickness and vomiting may follow. Otherwise they may be alarmed by the supervention of these symptoms. The neuralgic headaches which are sometimes so distressing to the patient in cases of amenorrhœa are usually most effectually relieved by the aid of heat, applied by means of a sponge squeezed out of hot water, or otherwise. Patients discover this for themselves; and you will sometimes find them applying mustard or turpentine to the forehead to relieve the deeper pain. In cases where the headaches have become of a chronic character, and of constant continuance, I have found the most admirable result from the use of nickel, administered in the form of the sulphate or phosphate, in doses of half-a-grain or a grain three times a day.

3. *Removal of the Eruptions.*—It holds good with regard to the acne that is wont in some cases to appear each month, perhaps more distinctly than with respect to any of the other secondary symptoms arising from suppression of the menses, that the secondary disease disappears at once when the menstrual discharge is restored. But, in a few cases, it still lingers on, and sometimes the disfigurement is very distressing to the patient, so that you may be called upon to make some direct application to the affected part. The application which I have found most useful in these cases of chronic catamenial acne is the oil or butter of antimony. This is usually said to be a powerful caustic; but if you apply it to the skin with a brush, and neutralise it speedily with some bicarbonate of soda, you will find that it causes almost no pain, and is not followed by any violent effect. What the explanation of its action may be in cases of acne I am not prepared to state; but certainly, when applied in the way I have described every two or three days for a week or two, it has usually a very wonderful effect in causing the disappearance of the eruption. If, after being employed for a time, it should appear to be losing its effect, its use should be interrupted, and applications should be made alternately of citrine or some other mercurial ointment, and of some of the preparations of iodine. Most of the preparations of this last drug labour under the disadvantage of producing a discoloration of the skin, which renders their applica-

tion to exposed parts always somewhat repulsive to the patient. But my friend Dr. Arkwright, of Accrington, has recently brought under my notice a preparation which seems to possess all the activity of the tincture of iodine, and which is quite colourless, so that it may be applied to the face or painted over strumous glands in the neck, without any discomfort to the patient. It is composed of one part of the ordinary compound tincture of iodine of the London Pharmacopœia, and two parts of the milder aqua ammonia. This mixture, which is at first brown, but after standing for forty or fifty hours becomes quite clear and colourless, may be applied to the skin two or three times a day for a lengthened period, without producing any of the pain or excoriation which attend the prolonged use of the ordinary tincture, and in obstinate cases of chronic acne it forms an admirable adjuvant to the other remedies of which I have spoken. As a local application, rumex ointment often answers well; and if the eruption is very irritable, bismuth or cucumber ointment, with the addition of a drachm of officinal prussic acid to each ounce of these ointments. Along with these external applications, however, it is often advisable to combine the internal administration of small doses of arsenic.

B. Systematic or Constitutional Treatment.

I have already stated to you that patients suffering from amenorrhœa may be either in a state of plethora or of anæmia. In either case they deviate from the normal standard of health. Your leading indication is to bring them back to the standard of health, and to fulfil this object you require for their restoration two different courses of treatment. The plethoric patient is to be subjected to a lowering system of treatment; leeches, perhaps, being applied occasionally in the region of the pelvis; mild saline laxatives being from time to time administered; diminution of diet being recommended, and abundant open-air exercise enforced. In cases of anæmia or chlorosis, on the other hand, the patient requires to be stimulated and fed up. You then administer the various tonics, and enjoin the use of a liberal diet; in all cases, however, having special regard to the state of the stomach; for many of these patients, as you know, suffer sadly from dyspepsia, and to throw in a number of strengthening drugs and a quantity of stimulating food into a stomach incapable of digesting and assimilating them, would only be to increase the mischief which you are anxious to remove and remedy. The tonics that have in such cases been found most serviceable, are those derived from the mineral kingdom, such as iron, manganese, zinc, arsenic, etc.; and sometimes you will find that, as in the laws regulating the use of diuretics, they will produce the desired effect more certainly when two or more of them are given combined together at once, than when one of them is administered separately. The phosphates of the first three metals I have named are, perhaps, at present, the preparations most in fashion, and they may be given either in the form of pills, or of the various syrups which are now to be had of all our principal chemists. It is a matter of so much importance to restore the patient to the normal standard of health, and some of these tonics, and more particularly the ferruginous preparations, have been found so serviceable in fulfilling this indication, that they have come to be regarded in the light of actual emmenagogues, and may be discussed as such.

C. Specific Treatment.

Infusions and other preparations of rue, myrrh, savine, and other herbs, were at one time much administered, under the belief that they were possessed of some special power of acting on the uterus and restoring its suspended function in cases of amenorrhœa; and ergot of rye, strychnia, etc., are still used with the same object. It is extremely doubtful whether these or any other drugs are possessed of any such specific properties. I see it stated in a recent number of one of the journals that the Japanese are supposed to have an infallible remedy for the cure of amenorrhœa; but from our experience here, I think we may be allowed to doubt whether even in Japan there exists a drug of such specific power—the effect of most of our supposed emmenagogues being due, as I have just stated, to their invigorating action on the general system. But, whatever be their *modus operandi*, some of them have so often proved useful in practice that you will feel yourself in almost every case bound to make trial of them for a length of time before having recourse to the employment of any more direct local remedies; and even after they have been administered without any specific effect for some months, and you have found it necessary to resort to some local measure, you may still make your patient continue to use

1. *Emmenagogues.*—If you poll the profession, you will find that the remedy most widely relied on for the cure of amenorrhœa is iron, in one or other of its forms and preparations, given either

alone or in combination with some other tonic, rather than with any of the so-called emmenagogues. Great faith has been and is entertained of its virtues in such cases by many of the ablest members of our profession. The late Dr. Marshall Hall, for example, used to speak of the combination of aloes and iron as being as certain a cure for amenorrhœa as quinine is for ague. The cases in which it is especially useful are those where the patient is in a chlorotic condition. When a patient consults you, and asks for a remedy for stoppage of "the courses," and you see that she is sickly and weak; when you look at her buccal mucous membrane and find it of a pale rather than of a red and healthy hue; when she suffers from œdema of the lower extremities; when she is subject to palpitations, and you can detect anæmic bruits in the heart and large bloodvessels, then you would certainly prescribe some preparation of iron, and continue its administration for many months. If you ask me in what form the iron ought in such a case to be given, I should say that it is perhaps a matter of little moment what particular preparation you employ, so long as the metal gets assimilated and goes to improve the condition of the blood. Quevenne has shown that all the salts of iron have the property of increasing the quantity of hæmatin in the circulating fluid—all, with the exception of the cyanides, which are passed off unaltered by the kidneys; and perhaps the point in regard to which you would be most liable to error would be in regarding the quantity of any of the salts of iron put into the patient's stomach as a measure of the amount of the drug actually absorbed and assimilated by the patient's system. A limited quantity only of what you administer will be received into the economy. The excess is carried off usually in the intestinal evacuations; and you must always guard against prescribing iron in such doses as to overload the digestive canal and impede its functional activity. Most practitioners get into the habit, after a time, of prescribing the same preparation of iron in all these cases, and I find that the preparation which is most frequently ordered by the members of our profession in this city is the saccharine carbonate—usually administered in the form of one or two five-grain pills three times a day. Then there is the compound pill of sulphate of iron and aloes, which is very much used, and which has this advantage over the other, that the constipating effects of the iron are counteracted by the aloes, and it is thus less likely to produce any intestinal disturbance. Or you may prescribe the citrate or lactate alone, or in combination with myrrh, or quinine, or some gentle aperient, according to circumstances. Or

tincture of the
or, in short, to a
may seem most suitab
these ferruginous pr
of them, only serve to
introduced into the syste
with this, as with many
attention to is to admi
agreeable—or, at all ev
patient. You remembe
patients quickly, safely
have probably always m
regard to the administrat
considered and carried out.
you will find it difficu
patient can swallow w
are certainly an imm
mixtures, but you will
against them. Perhap
when you administ
when given in thi
distinctly shown that th
in water out of th
the drug may be abs
the ordinary black pil
and some patients, a
suffering from the dis
difficulty in gettin
of some importance
less objectionable.
question of taste
will be deprived of an ex
medicine, if you can
she will be far more
medicines more willin
considerate as to order t
and the pleasant pr
due, in a great degr
of the public, a
our patients m
compounds

you may have recourse to the old tincture of the muriate, or Griffith's mixture, or to steel wine, or, in short, to any of the preparations, officinal or other, that may seem most suitable in any particular case. The multiplicity of these ferruginous preparations, and the reputed value of so many of them, only serve to show that in whatever form iron can be introduced into the system it will be found of use; and I believe that with this, as with many other remedies, what you should direct your attention to is to administer the drug in a form that will be as agreeable—or, at all events, as little repulsive as possible—to your patient. You remember the famous injunction of Celsus, to cure our patients quickly, safely, and pleasantly. The *cite* and the *tuto* we have probably always more or less in our minds; but I fear that in regard to the administration of drugs the *jucunde* is too rarely remembered and carried out. Most of our mixtures are sadly nauseous, and you will find it difficult to administer iron in any draught that a patient can swallow without repugnance. The phosphatic syrups are certainly an immense improvement on the other ferruginous mixtures, but you will meet with patients who are apt to rebel even against them. Perhaps iron will be most readily and regularly taken when you administer it in the form of a pill; and it is as effectual when given in this as in any other form, for Quevenne has distinctly shown that the degree of solubility of any of the salts of iron in water out of the body is no measure of the extent to which the drug may be absorbed and assimilated by the system. But the ordinary black pill is such a repulsive object to many people; and some patients, and particularly such females as those who are suffering from the disease under discussion, have such an unaccountable difficulty in getting them swallowed, that it becomes a matter of some importance for you to know how to render them somewhat less objectionable. And you must not suppose that this is a mere question of taste or caprice; for the fact is, your patient will be deprived of an excuse that is often pleaded for not taking her medicine, if you can render it palatable to her, and, moreover, she will be far more attentive to your instructions, and take your medicines more willingly and more readily, when she sees you so considerate as to order them in an agreeable form. To the small dose, and the pleasant preparation of the homœopathic practitioner is due, in a great degree, the favour he has obtained with a certain class of the public, and there is no good reason why we should punish our patients more than he does, or compel them to take abominable compounds where simpler and more palatable forms of the remedy would be equally efficacious. The bitter taste of most pills is, perhaps, their chief objection, and to conceal this you may order them to be coated with silver. There are but few patients who would find any difficulty in swallowing a silver-coated pill three times a day; but many object to the coating on the score of its expense—for the silvering of pills costs twopence a dozen—and they ask if there is no cheaper way of hiding the taste. When tolu is dissolved in chloroform, in the proportion of two drachms to the ounce, it forms a mixture from which the chloroform readily evaporates, leaving pills which have been dipped and shaken in a few drops of it, covered with a complete and equable coating of tolu. The tolu renders the pill perfectly tasteless in the mouth; and at the same time prevents the occurrence of changes in the drug, by forming a complete protection against various external influences. Iodide of iron pills, for example, when coated with tolu, keep perfectly well; and they soon become soft and shapeless without some such protection. For some time past I have often ordered the pill I prescribed to be coated with collodion. It renders them tasteless; and can be applied in a minute or two, by shaking the pills in a saucer, after pouring a few drops of collodion over them. You will find that a collodion-coated pill speedily breaks up in a little water. But in the manufacture of tasteless pills our American brethren, let me tell you, have gone far ahead of us. I show you here a series of small bottles from New York, containing what look like comfits, which are, in reality, pills of various kinds—blue pills, pills of colocynth and hyoscyamus, of morphia, of aloes and iron, assafœtida, etc.—all coated with sugar, and forming, perhaps, the very perfection of an agreeable remedy. All the ordinary pills of the Pharmacopœia, and many others, have been coated with sugar like these before us, and they are not more expensive, nor less efficacious, as I am assured, than their usually disgusting representatives in this "old country." But the objection to the coating of pills with sugar is, that it requires to be done on the large scale, and cannot be applied to any dozen or two of pills that you may require to prescribe. In the drying of the sugar, moreover, they are exposed to a high temperature, which might destroy some of the remedies you wish to administer. But even when the disagreeable taste of the drug has been concealed, and such a pleasant taste as that of sugar substituted for it, there are some patients who have an inexplicable kind of constitutional difficulty in swallowing pills. Try it as they may, they tell you the pill "won't go down." In such cases you must administer a liquid preparation; and in prescribing such you must remember that the compound salts, such as the ammonio-citrate or the potassio-tartrate, which is the salt dissolved in the so-called wine of iron, are the least offensive; and that most patients find the phosphates administered in the form of syrup along with manganese and phosphoric acid, or along with lime, soda, potash, and muriatic acid, as in Parrish's "Chemical Food," not merely tolerable, but extremely pleasant and palatable. I have, for some years past, been much in the habit of using a fluid preparation that I have already alluded to—viz., the syrup of the perphosphate of iron made by dissolving one grain of the phosphate in a teaspoonful of a solution of the glacial phosphoric acid of the strength of the dilute phosphoric acid of the London Pharmacopœia. From twenty to thirty grains of sugar are also dissolved in each teaspoonful of the mixture. A teaspoonful of this syrup mixed in a wine-glass of water makes a draught which is to most palates not at all disagreeable. The usual inkish taste of the chalybeate is lost in it. I generally prescribe it with a grain of the phosphate of manganese added to each dose. Manganese has an action on the blood and body very analogous to iron, and, like nickel, may be employed both as a substitute for it and as a valuable addition to it. But the administration of iron, whether it be given alone or in combination with other tonics or emmenagogues, as in most cases it ought to be, will not usually suffice to restore the catamenial flow in every case, however long its use may be continued. In the majority of cases you will be called to recommend, or have recourse to, some additional, more direct means of treatment. It is advisable sometimes, for instance, to recommend certain

2. *External Applications.*—Cupping-glasses, poultices, and various irritants, have been applied to the mammæ with the view of exciting a sympathetic action in the uterus, and cupping over the sacrum or the application of leeches around the verge of the anus, are often serviceable in plethoric subjects in relieving congestion and promoting the return of the menstrual secretion. Occasionally two or three leeches applied to the pelvis or limbs punctually every month appear, as it were, to teach Nature again her lost periodicity, and prove at last apparently successful in curing those cases of amenorrhœa in which there is no counter-indication to such small evacuations. Patients sometimes put their feet regularly into hot water with the same view; and you will occasionally meet with good results from the enforcing of this practice, or from making the patient sit for four

or five successive nights, for twenty minutes or half-an-hour, in a hip bath, to which, if you think fit, a little mustard may be added.

3. *Injections into the Rectum or Vagina.*—I have already spoken of aloes as sometimes given in cases of amenorrhœa along with iron, to counteract the constipating tendency of the latter; and I should have stated that aloes is preferred to other aperient drugs because of its exerting its special influence on the rectum and lower part of the colon, whence it is supposed that a reflex stimulus is conveyed to the uterus, which tends to excite that organ to full functional activity. Under the same idea injections of aloes and other local intestinal irritants have sometimes been recommended and made into the rectum, with, it is averred, occasionally successful results. More directly irritating applications to the uterus itself have sometimes been made by injecting various stimulating fluids into the vagina, as in Italy, where the injection into the vagina of a teaspoonful of aqua ammoniæ in a cup of milk has been recommended as one of the most certain measures for restoring the catamenial flow. I have still the local treatment of amenorrhœa to discuss; but I must reserve this topic till we meet again.

LECTURE XLI.

AMENORRHŒA—ITS LOCAL TREATMENT.

It not unfrequently occurs in practice that, after having attended to all the indications which I have laid down, and after having used the several varieties of remedial measures that I have described, still the amenorrhœa persists. The general health and powers may be restored, but still the catamenial discharge does not return.

A local action or irritation sometimes requires to be superadded in order to initiate the menstrual action; just as the clock, though duly and fully wound up, will not tell the march of time till the pendulum is swung. And again, there are other obstinate cases of amenorrhœa connected with imperfect development of the uterus, or with atrophy and super-involution of the uterus after delivery, or —let me add, with threatened phthisis and chest disease,—where the local treatment is necessary from the first, inasmuch as in these forms mere constitutional treatment usually and utterly fails to cure the disease.

By the term "local treatment" of amenorrhœa we understand the direct application of local therapeutic stimulants or excitants to the vaginal canal, or, more specially, to the uterus or uterine cavity itself. Let me speak of—

1. Local Emmenagogues applied to the Vagina.

I have already, in the remarks that I made upon the specific treatment of amenorrhœa, alluded to the injection into the vagina of a solution of aqua ammoniæ in milk as a means of exciting the menstrual secretion. The injection is made by adding a teaspoonful of aqua ammoniæ to the pint of milk. But I readvert to the subject of local means applicable to the vagina for the cure of amenorrhœa chiefly with the object of observing that the ancient physicians appear to have been much in the habit of employing in amenorrhœa local measures of this description. In those writings of the Greek, Roman, Arabian, and mediæval medical authors that refer to the diseases of women, you will find constant references to the treatment of amenorrhœa by local stimulants introduced into the vagina. These stimulants were applied under the various names of "suppositoria vaginalia," "balani," "nascalia," etc., but usually they were spoken of in the literature and practice of those ancient times under the name of pessaries. In modern obstetric practice the term pessary has been usually limited to mechanical supports introduced into the vagina for the purpose of supporting the uterus when prolapsed or displaced. In ancient obstetric language the term was far more generally applied to various medicated applications introduced into the vagina for the cure of uterine functional diseases, as amenorrhœa, menorrhagia, etc. When used for these medical purposes, the pessaries of the ancients usually consisted of medicated ointments or liniments spread upon elongated pieces of wool; and sometimes of stimulating ingredients incorporated with honey or other semi-unctuous substances, and enclosed in a linen bag. "A pessary," to quote the definition of Paulus Ægineta, "consists of carded wool, rounded to the shape of the finger, and impregnated with the medicines." Now, the drugs used in the formation of these ancient medicated pessaries appear to have been both very numerous and very various. For they included oils, juices, and other suitable preparations, from all that long, long list of emmenagogues in which the ancients believed. These emmenagogues would act, they seem to have supposed, upon the uterus, whether introduced into the stomach or applied to the vagina. They comprehended also various direct local stimulants—as turpentine, cantharides, verdigris, or acetate of copper, etc. I am not aware that, in modern times, medicated pessaries have been employed with the view of producing an emmenagogue action; and the fact of their total disuse for this purpose is, perhaps, the strongest argument against their power to produce any effect upon the stimulation of the menstrual secretion. You are aware, however, that medicated pessaries containing bismuth, iodide of lead, mercury, morphia, belladonna, etc., are used successfully in uterine therapeutics for other purposes. In using for the reduction of uterine neuralgic pains and supersensibility belladonna pessaries, with a few drops of oil and chloroform introduced into their centre—a plan which is often of great use in hysteralgia—I have sometimes fancied that the chloroform when thus locally applied had occasionally a decided emmenagogue effect. But whether this drug, or any of the many new stimulants in modern pharmacy that could thus be applied locally to the vagina and cervix uteri would really act as local emmenagogues, is a question that only experience can decide, and probably this decision will be adverse. Let me here, when I am speaking of the medicated pessaries of the ancients, further observe that they fancied that they possessed medicated pessaries which could fulfil more remarkable indications than even the restoration of the catamenial secretion. We know, from only too numerous sources, that criminal abortion was extensively practised in the ancient Pagan world. Various Greek and Roman authors speak of medicated stimulating pessaries, which, when introduced into the vagina, were supposed to be capable of exciting expulsive uterine action in the pregnant uterus. Already, upwards of 2000 years ago, this oxytoxic action of medicated pessaries was believed to be so certain, that Hippocrates made his disciples swear that they would not employ these pessaries for the production of abortion. No drug is known, in modern times, to have the property, when applied to the vagina, of arousing the uterus into parturient action. But if any such drug were discovered, it would, I believe, be applied by the profession of the present day to its only legitimate purpose, of inducing premature labour in those cases and circumstances in which this induction is now had recourse to. But let us pass on to the consideration of

2. LOCAL EMMENAGOGUES APPLIED TO THE UTERUS.

The surface of the cervix uteri has been occasionally made the seat of local stimulating applications for the restoration of the catamenial secretion. The lining membrane of the uterus and the cavity of the organ have latterly been more frequently used for this purpose.

1. *Nitrate of Silver to the Cervix Uteri*, applied in substance or in a strong solution, so as to blister, is occasionally used, with some degree of success, by our French medical brethren, for the cure of amenorrhœa. Lubanski and Egan have published cases of its successful employment. But

2. *Direct Stimulants applied to the Uterus or Uterine cavity itself* are undoubtedly the most certain means at our command for recalling its suspended menstrual function. The irritant may be nitrate of silver, or cantharides, or iodine. They may be applied to the lining membrane of the uterine cavity by means of such an instrument as that I now show you. This is simply a Lallemand's porte-caustique of sufficient length to pass readily into the interior of th

uterus,—curved so as to adapt it to the uterine inclination, and furnished with a knob, like that on the uterine sound, at two and a half inches from the point, to enable you to know when the instrument has reached the fundus. Charged with some powdered nitrate of silver, or cantharidine powder or ointment, it is introduced, about the period when a menstrual discharge might be expected, into the interior of the uterus, and the stylet being then pushed forward, and subsequently rotated twice or thrice, the irritant is thus sprinkled over the mucous membrane, or dissolved out so as to come in contact with it. I have often known this form of irritant application produce menstruation in a few hours ; and excite the womb in obstinate cases, when repeated at monthly intervals, to the healthy performance of its normal functions, and so put an end to a long train of distressing symptoms.

3. *Dry Cupping the Interior of the Uterus.*—Some years ago I became strongly impressed with the idea that if we had any means of, as it were, dry-cupping the interior of the uterus, so as to draw the blood in larger quantity to the surface of its lining membrane, we might, perhaps, succeed frequently, in some varieties of amenorrhœa, in exciting the uterus to the resumption of its functions, and effect a temporary relief in the condition of our patient similar to that produced by leeches applied to the cervix uteri and elsewhere, but superior to it in being a more perfect imitation of Nature's mode of relief, and not likely to be attended with so much general deterioration of the system. With this view, I have made frequent use of a tube resembling in length and size a male catheter, with a large number of thickly-set small orifices stretching along for about two inches from its extremity, and having an exhausting syringe adapted to its outer or lower extremity, by which the air could be withdrawn after it had been introduced into the cavity of the uterus. The use of this instrument is in some cases attended with striking results. It usually happens that after a few strokes of the piston of the syringe, and the retention of the instrument for two or three minutes in utero, a small quantity of blood is found in the tube of the instrument after its withdrawal. For it does not exactly operate as a mere dry-cupping apparatus congesting the lining membrane of the uterus. More generally the exhaustion of the syringe draws the mucous membrane of the uterus so much through the numerous small orifices which perforate its uterine extremity, that these congested and constringed points yield a little blood. I have known the menstrual secretion to follow immediately upon the use

of this means in cases of amenorrhœa that had been of long
ing. But more generally it requires to be employed severa
successively, or successively for a few days at two or three mei
periods, before this happy result is obtained. And occasion

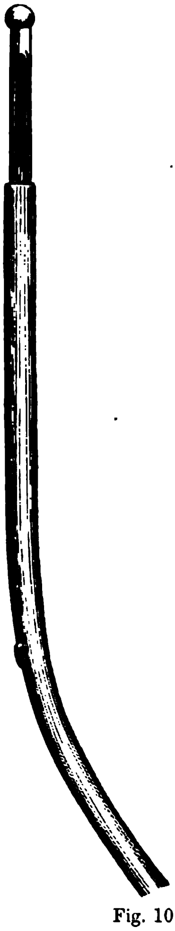


Fig. 101.

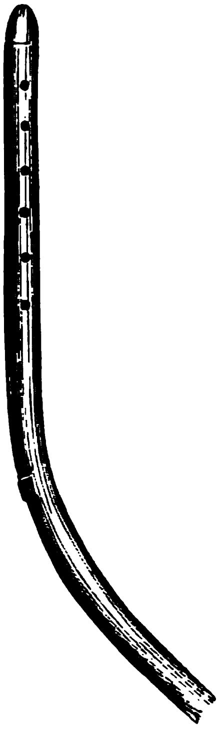


Fig. 102.

will, like all other emmenagogue means, fail entirely. In fa
the process of normal menstruation, other normal conditions ol
besides a congested and active state of the vessels of the secn
mucous membrane of the uterus itself. The observations of

Fig. 101. Porte-castique for applying nitrate of silver, etc., to the inter
the uterus.

Fig. 102. Instrument for dry-cupping the interior of the uterus.

Power, Lee, Girdwood, and others, show that menstruation is dependent upon changes in the ovaries or ovarian vesicles, as well as upon changes in the uterus. Sometimes the changes in the ovaries may possibly be present without the induction of the corresponding secretory action in the mucous membrane of the uterus. In such instances, in particular, the local means—nitrate of silver and dry cupping—that I have hitherto spoken of, may perhaps be chiefly of use. But probably in those cases where the ovaries require to be stimulated as well as the uterus, we have a more likely means of accomplishing this double purpose in the means I have next to mention, than in those I have hitherto adverted to. I allude to the introduction and wearing of a small and usually galvanic intra-uterine pessary as a general stimulant to these organs. In one of the first cases in which I successfully tried this means—now many years ago—the patient, after menstruation commenced, was, in consequence of great exposure and cold, attacked with acute double pneumonia, which rapidly proved fatal. On the post-mortem examination of her body, along with Dr. Robert Hamilton, who had attended her in her illness, we found the menstruation, which had been established for the first time for many months, accompanied with the usual congested and hypertrophied appearances in the lining membrane of the uterus, and with the apoplectic rupture and destruction of a Graafian vesicle in one of the ovaries.

4. *Intra-uterine Pessaries.*—This form of instrument consists simply, as you perceive, of a small copper bulb (see Fig. 103, *a b*), from the middle of which there rises a stem, *d*, made half of copper and half of zinc, and measuring $2\frac{1}{3}$ inches in length, or rather less than the length of the uterine cavity. In introducing it, the patient is placed as usual on her left side, and the forefinger of the right hand having been brought into contact with the os uteri, the instrument is guided along it either with the right thumb or with the fingers of the left hand until the point of it passes through the orifice into the canal of the cervix. Usually you will experience no great difficulty in passing the instrument in this way up as far as the os internum; and if you now remove the point of the forefinger from the os and apply it below the bulb of the instrument so as to press it gently upwards, you will sometimes succeed, with the greatest ease, in insinuating it entirely into the uterine cavity, till the upper surface of the bulb is felt to be in apposition with the lips of the cervix. In other cases, however, you will meet at this stage with some degree of difficulty, for the os internum is occasionally the site of a kind of stricture,

and this state of matters is further not unfrequently complicate a slight anteflexion of the whole organ at the union of the and cervix, so that the point of the pessary is apt to be caug this level, and its complete entrance into the uterine cavity structed. In such cases you will best effect your object by pre the bulb of the bougie very much towards the hollow of the sac so as to tilt forwards the point of it, and to make it move slig from side to side, or from before backwards, when you will fe

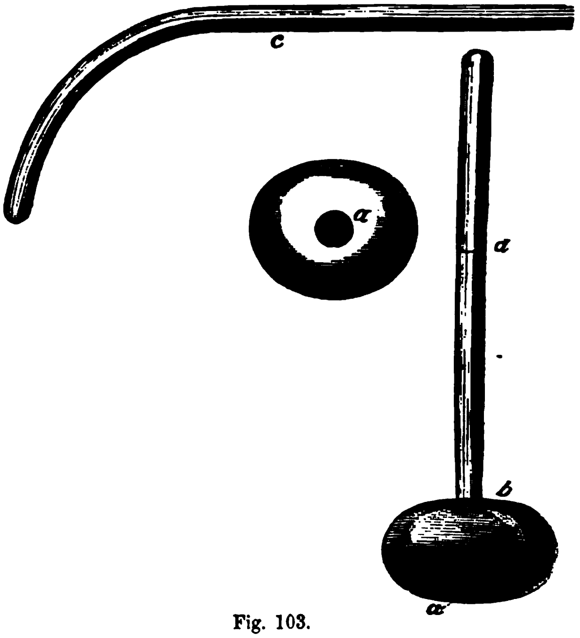


Fig. 103.

suddenly passing the constricted spot, and the uterus settling dow as it were, on the instrument, without the exertion on your part any active or injurious amount of upward pressure. I have spok of the introduction of the intra-uterine stem pessary as being effect by the unaided action of fingers, because, for a long time past have never had recourse to any other means. But, as you m observe, there is, on the surface of the bulb opposed to that fr

Fig. 103. Full-sized sketch of the galvanic intra-uterine pessary, *a b d*, an the staff, *c*, used for introducing it. *a*. Perforation on the lower surface of t bulb, *a b*, of the pessary, into which the point of the staff is made to fit; *b* stem, or intra-uterine portion of the instrument, consisting in the lower ha from *b* to *d*, of copper, and towards the point of zinc.

which the stem springs, a small orifice, *a*, intended to admit the point of a staff, *c*, which may be used to facilitate the introduction of the pessary. The staff is made of steel, is about eight inches in length, and is slightly bent at the point, so that when it is fitted into the hole in the bulb of the bougie, the latter can be guided by means of it in any direction, with more precision and power. I fear, however, that no mere description I can give you as to the mode of passing the intra-uterine pessary will enable you in any case to effect its introduction. This is one of those little operations which you will only succeed in performing properly by a certain amount of practice; and I believe that after you have tried it a few times, so as to have gained a little tact and skill in the manipulation of the bougie, you will come to effect its introduction easily with the fingers alone, and discard altogether the use of the staff. There is one secret regarding the introduction of this instrument that I have to tell you. Sometimes you may have succeeded in passing the uterine sound easily enough, but are foiled in your effort to introduce the permanent pessary. In such a case you may save pain to your patient and trouble to yourself, by reintroducing the sound, and leaving the patient lying with it in the uterus for half-an-hour or an hour, at the end of which time you will find it is so placed or so patulous as readily to admit the intra-uterine bougie. But you may ask, will the instrument thus introduced remain of itself *in situ?* In the majority of cases it will; and always with most certainty in those where the internal orifice has been so contracted or curved as to render the introduction of it somewhat difficult. In other cases its reintroduction is attended with no difficulty or discomfort, and you will find that after it has been worn for some days, the zinc half of the stem becomes covered with a white saline crust of greater or less thickness, which tends to enable it afterwards to keep its position. Though the zinc portion is generally deeply incrusted on the withdrawal of the instrument, the copper portion is always, on the contrary, clean, and clear of all deposit. Before reintroducing it, remove the crust from the zinc portion, and wash it with vinegar. If you find it necessary, you may sometimes introduce below the instrument, as I have not unfrequently done, a small gutta-percha pessary, such as we use in the treatment of prolapsus uteri, which will support the intra-uterine pessary and prevent it from slipping out. I never saw the use of this instrument for the cure of amenorrhœa attended with any untoward result, and I and my assistants have employed it in a very great number of cases. Often we see its introduction immediately followed by the most marked results, especially with regard to the cure of the headaches and other secondary symptoms; and if worn for a sufficient length of time, it does not often fail in exciting the uterus to the performance of its functions, or in recalling them when they have become suspended. I have seen menstruation speedily recalled by it after almost shop-loads of physic had been used in vain for the purpose. It produces its effect, I believe, simply by the gentle and continued stimulation of the whole uterine system. Probably other kinds of foreign body lodged there would produce much the same effect; and I have treated cases of amenorrhœa with success by the introduction of a stem pessary made entirely of copper or of German silver, such as is used for dilating the cervical canal in cases of dysmenorrhœa. But in cases of simple amenorrhœa I prefer to have the instrument made of two different metals, as suggested by Dr. Weir, because the slow galvanic action resulting from the chemical changes effected in the zinc increases the chances of a speedy and successful issue. For, let me remark, finally, there is yet one other means which has been often much relied on and bepraised as eminently serviceable for the cure of amenorrhœa—viz. the application to the uterus of

5. *Electricity and Galvanism.*—Among their multifarious medical applications, galvanism and electricity have been from time to time employed in the treatment of various uterine disorders; and, in the latest American work on their use in medicine, by Dr. Garratt, of Boston, I find the author speaking of them as almost the only certain means of exciting the action of the uterus in cases of amenorrhœa. To apply them to this organ you need to be provided with special forms of conductors. I believe that the slow but long-continued action of the intra-uterine galvanic pessary will produce the effect with far more certainty than the repeated application of a stronger current; and I am sure that when you have found how easy it is, after a little practice, to introduce the instrument, and when you have witnessed in a few cases the safety and success that attend its employment, you will become more and more inclined to treat those very obstinate cases of amenorrhœa by means of the galvanic bougie rather than by any more irksome or prolonged plan of treatment. The galvanic pessary, however, is a measure which you would not be justified in ever employing in young and unmarried patients, except the great obstinacy of the case, the severity of the sympathetic or secondary effects, or the danger to the patient's health

and life, gave you adequate warrant for such interference. In the less clamant cases of amenorrhœa we would rejoice to find any external mode of applying electricity effectual as an emmenagogue, whether the electricity were derived from induction, as when the so-called "Faradaic currents" are used; or from chemical decomposition, as in the various forms of galvanic battery; or from friction, as when electric sparks and discharges from the Leyden jar are employed. Of the effects of Faradisation in amenorrhœa I know little practically. But I have seen the galvanic current employed some fifteen or twenty years ago often, and certainly, on the whole, with little or no emmenagogue effect. About a quarter of a century ago electric sparks directed through the uterine region were tried in many cases of amenorrhœa by my predecessor, Dr. Hamilton, and my friend Dr. Ziegler, who is most thoroughly acquainted with medical electricity and its applications in practice. I have Dr. Ziegler's high authority for stating that, after making many trials of it in amenorrhœa, the impression left on his mind is, that, as an emmenagogue, it is in the main quite ineffectual and useless. It is but right, however, to add that some observers, as Dr. Golding Bird, have arrived at a different and far more favourable conclusion; but I am inclined to place great reliance upon the results of Dr. Ziegler's experience on this subject.

AMENORRHŒA CONNECTED WITH AN UNDERSIZED UTERUS.

I have hitherto neglected to speak of the special treatment of the kind of case that gave rise to these observations—viz. an amenorrhœa with an undersized uterus. Now, in atrophy of the uterus, whether from imperfect original development of the organ at puberty, or from super-involution during the puerperal state, the chief hope that we can, I think, ever entertain of the cure of the amenorrhœa, consists in the use of the intra-uterine or galvanic pessary. For it is only by this means that we can expect to remove the undeveloped organic state of the uterus upon which the amenorrhœa depends. To understand its mode of action in these cases, let me here state to you that in uterine therapeutics, as in uterine pathology and physiology, there prevails the great general law, that all continuous and increasing irritations and expansions of the uterine cavity or uterine walls from foreign bodies, leads to increased growth and hypertrophy in the walls of the organ. This is true whether the foreign body be an ovum, as in uterine physiology, or a polypus or fibroid tumour, as in uterine pathology, or a series of gradually enlarged intra-uterine pessaries, as in this instance of uterine therapeutics. But a mere acute temporary expansion of the uterus or uterine walls is not sufficient to lead to their development or hypertrophy. Hence, for example, the temporary use of a sponge tent or tents in the cavity of the uterus for one or two days will not suffice. The irritation, if I may so speak, must be much more chronic and prolonged in its action. Where the uterus is very undersized, as ascertained by the uterine sound, where it is not above an inch or an inch and a quarter in length, all treatment will, I believe, probably prove useless. But where the atrophy or diminution is not so great, and the organ not, perhaps, a few lines less in length than the normal uterus, you have a good chance of relieving or curing your patient, by making her wear a series of small galvanic pessaries, of greater and greater length and thickness. I have now repeatedly seen menstruation both temporarily and permanently restored by this simple means. The history of the first successful case of this kind which I met will probably illustrate the practice better than any long detail. The history of the case of amenorrhœa to which I refer impressed itself upon my memory by its peculiar obstinacy, by the variety of measures that were employed for its cure, and by the complete success which finally attended the use of a means of which I shall presently speak, after the patient had nearly reached her thirtieth year. The patient, who was the sister of a doctor, and had been under the care of various medical men at different times, had from puberty suffered from amenorrhœa and its attendant evils, more especially from asthma, recurring every month and lasting for several days, and interfering sadly with her health and happiness. She had never once menstruated regularly, the uterus being slightly undersized. She had taken quantities of medicine of every possible kind, had been repeatedly leeched, and had been subjected to many different local applications, sometimes with some little relief to her symptoms, but never with any result at all approaching to a cure. Believing that in such a case all hope of radical relief was vain, except through measures directed towards the uterus itself, I persevered for a time in the application of nitrate of silver to the lining membrane of its cavity, in the manner I have described to you; and the operation was always attended with more complete and lasting relief than the patient had ever before experienced. This treatment was for several months persevered in; but both she and I having become tired at last of imperfect and transient results, I had recourse to the introduction of a small metallic pessary into the uterine cavity. In the case of the lady of whom I now speak, the introduction of this instrument was followed by the speedy relief of all her more urgent symptoms, and particularly of her monthly fit of asthma; and after she had worn it for some weeks she was equally astonished and delighted to find, at the recurrence of her next period, a free menstrual discharge, instead of the dreaded apnœa with which she had been so long afflicted. She continued to wear it for ten or twelve months until her health became so far restored that she was able to go to a ball—a kind of amusement in which she had never before been qualified to indulge. When the discharge appeared to have become fairly established, the instrument was at last removed; and for some months the patient continued to menstruate regularly, and to enjoy good general health. On the recurrence of cold weather, however, the uterus again failed to perform its function, and instead of having the proper menstrual discharge, she was attacked with one of her old fits of asthma. At her own suggestion and urgent solicitation I again introduced the galvanic pessary, and she wore it for about three years altogether, without ever experiencing from it any kind of inconvenience. The uterus during that time performed its functions painlessly and regularly; the secondary symptoms were all kept in abeyance; and it was only at length finally removed when the uterus was found to be equal to the performance of its functions without the presence of any irritant in its interior. The same good effects which were here produced I have seen resulting from the use of the intra-uterine bougie or pessary in various similar cases.

LECTURE XLII.

ON RUPTURE OF THE PERINEUM.

GENTLEMEN—In the course of my Lectures on Midwifery I have had occasion to point out to you the necessity of guarding against an accident that is liable to occur towards the close of the second stage of labour. Laceration of the perineum is the accident to which I refer, and you may remember that I told you that it was a very rare and altogether exceptional case for a woman to pass through her first labour without sustaining some injury, more or less, of the structures that close the outlet of the pelvis. We can hardly be surprised to find the perineum giving way to some extent, when subjected for the first time to the stretching and straining produced by the pressure of the descending fœtal head; and since my attention has been more particularly directed to this point, I think I have seen no first labour terminate without a slight laceration of some of the parts. In most cases it is extremely trifling—sometimes consisting of nothing more than a simple fissure of the mucous membrane, which one would easily overlook who was not searching specially for it; whilst in a few the tear passes over the anterior margin of the perineum, and involves the skin and intervening textures as well, to the extent, perhaps, of half-an-inch or an inch. Such tears, however, are matters of no pathological moment, and require no kind of active treatment. If the patient be kept lying on her side, so that the lochial discharge be hindered as much as possible from washing directly over the raw surface, and the nurse be attentive in keeping the passage clean, the wound will speedily heal, and by the time the patient is able to be out of bed, you will find almost no trace remaining of the injury.

Rupture of the perineum may occur, however, not only at its anterior margin. I show you here a preparation (see Fig. 104) of the external parts of a patient in whom, during labour, the perineum had given way in the centre, so that the child was forced out not through the vulva, but through this artificial opening. Such central ruptures of the perineum are very rare, and if the edges of the raw wound are carefully brought together it will close up readily enough. A small fistulous opening will be left, as in this case, which does not in any way interfere with the patient's comfort, or lead to any impairment of her health.

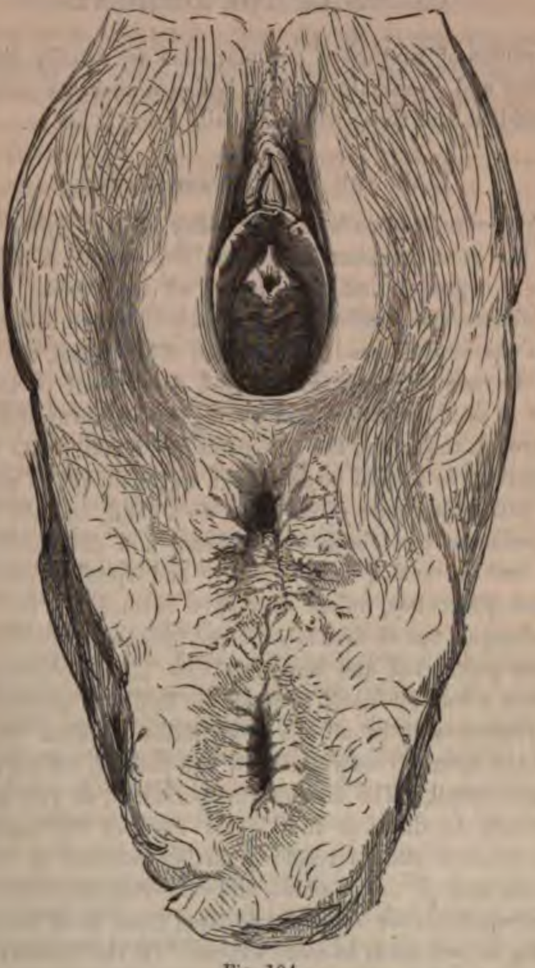


Fig. 104.

But the form of laceration to which I wish now more particularly to refer is that more severe variety where the rent passes back through the whole thickness of the perineum, as far as the sphincter ani, or where the sphincter itself, and perhaps also a portion of the recto-vaginal septum, are torn through, so that the two cavities are thrown into one. Such grave lesions are, fortunately of comparatively rare occurrence, and arise only under special circumstances.

CAUSES OF THE ACCIDENT.

The causes of rupture of the perineum are usually divided into *Predisposing* and *Proximate*, or those which render the patient liable to the accident and those which actually bring it about.

I. OF THE PREDISPOSING CAUSES.

1. *Preternatural Smallness or Rigidity of the Vaginal Orifice* is, perhaps, the most frequent. At least, this condition obtains in a pre-eminent degree in first labours, and all observation shows that in first labours the accident is peculiarly liable to occur. By the time that the head descends on the floor of the pelvis, the soft parts have all become softened and relaxed, as a result of the process described as vital dilatation, and as it presses downwards and forwards through the vulva, the structures yield and dilate before it, till an aperture is formed large enough to permit of its easy egress. When a patient has once given birth to a child, and the structures of the perineum have been once relaxed and distended, their relaxation and distension will be easily and speedily effected in a subsequent pregnancy, unless they have become the seat of some morbid change ; but in first labours the process of dilatation is so much more protracted and imperfect that the descending head is apt to force a way for itself through the firm and inelastic tissues. Such a rupture will be all the more liable to occur where, as a result of the natural conformation of the patient, the vulvar orifice is unusually small. The size of the perineum, as you are aware, varies greatly in different individuals even of the same general size, the anterior margin reaching farther forward in some cases towards the arch of the os pubis, and rendering the outlet so small that it is impossible for an ordinary-sized fœtal head to pass without tearing it backwards to some extent. Or the narrowing of the outlet may take place at the other extremity of the pudendal orifice, as has been remarked by my friend Mr. Carmichael in the case of a patient on whom I had operated for ruptured perineum, and in whom, on the occasion of a subsequent confinement, the laceration was renewed. In that case the arch of the os pubis was so contracted, in consequence of the approximation of the descending

rami, that the occiput of the child could not come closely in apposition with the symphysis, but was pushed so far backwards and downwards as easily to admit the finger; and in the case of such a conformation of the parts you can readily understand how the head would be obliged to make a way for itself by pressing more than usually backwards, and tearing through the obstructing perineum. I need scarcely add that a patient will be all the more liable to suffer from rupture of the perineum, if, on the one hand, she happen to give birth to a child before she have reached a proper age, and before the canals have attained their proper size and strength; or if, on the other hand, she first becomes subjected to the process of parturition after she has attained a somewhat advanced age, and the tissues have become hard and undilatable.

2. *Morbid Changes in the Part: Rigidity of Youth or Age.*—The natural rigidity of the parts may be further increased in consequence of diseased action taking place in the structures of the perineum; which will have the effect of rendering the tissues more friable, at the same time that it leaves them more indurated and unyielding. Thus you may have ulceration going on when labour sets in; or you may find the results of old ulcerations in firm cicatricial thickening of the parts; or they may be the seat of inflammatory, syphylitic, or malignant deposits of various kinds; and whenever in any case of labour you meet with such morbid changes in the perineum, you must be more than usually careful to use all measures likely to avert the danger of its laceration.

3. *Too rapid Labour.*—It has been remarked that where the process of parturition goes on too hurriedly, the patient is in some danger of suffering from laceration of the perineum; and you can easily understand how this accident might happen in any case where the uterus was acting so energetically as to push the fœtal head rapidly down through the pelvis, and to force it through the lower outlet before the soft parts have had time to undergo the necessary degree of relaxation and dilatation. Some practitioners have fancied that the strong involuntary expulsive efforts made by patients in whom the sensibility was obtunded by the use of chloroform were more liable to this accident; but I have never witnessed it under circumstances which would justify me in thus explaining its occurrence.

Such are the principal cases and conditions in which you may anticipate the occurrence of laceration and rupture of the perineum. But, as the immediate exciting causes of the accident, various other

elements have to be considered. It would not be easy to
what is the most frequent

II. OF THE PROXIMATE CAUSES.

1. *Descent of the Fœtal Head.*—It most frequently
that rupture of the perineum is produced when the head
from the outlet; and even in cases where the passage
shoulders seems to be the occasion of the greater part of the
tion, the injury is usually begun during the passage of th
In a perfectly normal state of the parts, the head makes
after stretching them to their utmost without producing mo
a trifling tear in the mucous membrane. But when any
predisposing causes to which I have directed your attention
operation, then a head, even though of normal size, will be
cause a more extensive laceration. The danger will be in
where the head itself is at all enlarged, or so firmly ossified a
incapable of collapsing and adapting itself to the calibre
canals through which it has to pass. Again, in those cases
the face presents, or where the head descends in some other u
position, rupture is liable to occur in consequence of the larg
meter of the head being then forced through the vulva; and
such cases especial care must be taken to guard against the
rence of the accident.

2. *Simultaneous Emergence of both Shoulders.*—Although
tions of the perineum are usually initiated, and often accompl
during the passage of the head through the vulva, the ext
the laceration in many cases depends on the degree of stret
produced during the transit of the shoulders. In some ins
where the perineum has appeared to permit the escape of the
without suffering any injury, and the practitioner is congratu
himself that the risk is over, and perhaps has been less care
continue the support he had been diligently applying previous
is disappointed to find that during the passage of the sho
the structures have given way, and a rent has taken place th
the recto-vaginal septum. If we have the opportunity of witn
such a case, we may observe that the ordinary mechanism of lab
modified, and the shoulder which lies in the arch of the pubis att
as it were to escape before the other has cleared the perineum
the uterus be contracting very powerfully, both shoulders m
shot simultaneously through the lacerated floor of the pelvis

you require to bear in mind the possibility of such an accident in cases where there is some delay in the expulsion of the body after the head has been born, and you find it necessary to expedite the labour. For I have to observe that lacerations of the perineum are too often the result of

3. *Operative Interference.*—In forceps cases you will sometimes find it impossible to avert some degree of laceration, particularly where the instrument is required on account of preternatural rigidity of the soft parts or unusually large size of the fœtal head. In footling cases also, and in cases of podalic version, we require to be careful lest rupture of the perineum occur under too hasty extraction of the fœtal head, without due regard being had to the axis of the pelvic outlet.

SYMPTOMS AND DIAGNOSIS.

However it may be produced, the accident is easily recognised. The tear is readily felt by the finger.

Where some months have elapsed since the occurrence of the accident, the patient may come complaining of inability to retain the contents of the bowels. She may be unable to retain even solid fæces in the rectum; and where there is any diarrhœa—and such patients are prone to suffer from mucous discharges from the bowel—or where aperients have been used, the liquid contents infallibly escape, leading to the utmost distress. In this way the morbid condition may render the patient unfit to enter society. There is, at the same time, a liability to the production of prolapsus of the uterus and vaginal walls, and where the uterus is hypertrophied and engorged, complete protrusion of it may result.

TREATMENT.

Your treatment of such an injury will vary, according as you have to do with a recent case or with one of longer standing. But let me remark that much may be done to prevent its occurrence, and you must be ready to employ some

I. PROPHYLACTIC MEASURES.

a. Support the Perineum.—Where the vaginal orifice is small, or where the head is preternaturally large or prematurely ossified, or where it is descending in some unusual position—in short, where any of the conditions are present which I have been pointing out to you as likely to lead to the accident—you will take special care to

avert it by supplying support to the perineum with more th
diligence.

b. Direct the Tear by Lateral Incisions.—In cases where
that laceration is inevitable, and that the head cannot free t
outlet without injury to the soft parts, you must not leave th
to the efforts of nature. For if the case be left unaided, the
will run in all probability in the line of the raphe, strai
towards the rectum. But you have it in your power to
rupture a more favourable direction by making two lateral
into the distended perineum, beginning about an inch to ei
of the central point of the margin, and running obliquely
and backwards towards the tuberosities of the ischium. I h
ceeded in some cases in saving the perineum by such incisi
though at the time they look large and formidable, yet w
parts contract afterwards they leave very slight cicatrices.

II. TREATMENT OF RECENT RUPTURES.

When rupture of the perineum has happened, what is to
Let me say at once, and first of all, don't be anxious or unea
the slighter forms of laceration. It is only where the whole p
and the sphincter ani are torn through that you need do m
attend to cleanliness. Keep the patient lying on her side, a
the nurse against opening up the edges of the wound.

But where rupture has occurred to a greater extent, it
be a question what more we ought to do whilst the wound
raw, or whether we ought to institute any other treatment
The question is not very easily answered. Many men will
of cases where, by simply attending to the patient's cleanli
quiet, there has been perfect union of the most extensive ru
the perineum, without their having had recourse to any
operative interference. And, perhaps, we ought to content o
in most instances with—1*st.* Keeping the patient on her si
to allow the discharges to run past the wound instead of
between its lips; 2*d.* Introducing the catheter at stated pe
order that no urine may come into contact with the raw s
and, 3*d.* Keeping the parts in apposition by tying the
knees or strapping her hips together.

You may ask, Are no dressings to be applied to the p
believe that, if any dressing is to be applied, it should sim
cloth dipped in cold water, and perhaps not even that.

that Mr. Teale of Leeds is quite right in teaching that the best application to wounds is just nothing at all. For what use is there in dressing even with cold water? It cannot keep down inflammation, because it soon becomes warm; and the employment of it keeps us under the delusion that we are doing something when in reality we are doing nothing, or, it may be, only something wrong. In the case of wounds of the perineum, I believe the rule ought to be to apply nothing; and, without having recourse to any kind of medication, and simply attending to the three points which I have indicated to you, you will often have the satisfaction of seeing lacerations and ruptures of the perineum close up and leave no evil consequences.

But where the rupture is very extensive, involving the wall of the rectum, you may require to have recourse to something in the way of an operation in order to keep the edges of the wound in apposition. Duparcque advises the use of pads. Strips of adhesive plaster have been used by some to keep the lips together; and serresfines by others. These expedients were had recourse to when surgeons had only the silken and other organic sutures at their command, which absorbed fluids, and by their very presence excited some degree of inflammation and ulceration. But now that we have learned the value of metallic sutures the question again comes up for discussion, Whether we should not sew up the wound with metallic stitches as soon as we have ascertained its occurrence? and I believe that where the rent is large it is well to attempt by their use to ensure immediate union. I have seen the operation successful; but I have also seen an unfavourable result. I employed the metallic sutures two or three years ago in a case where I was myself one of the causes of the rupture. It was a breech case which I saw with my friend Dr. Moir, where the patient had been long in labour, and where, after I had pulled down the foot of a large child, the head got arrested at the brim. There was great difficulty in getting the head through the brim, and Dr. Moir was pulling the feet, whilst I was acting upon the shoulders and head, when it slipped suddenly through the cavity, and at the same moment tore its way through the perineum. I sewed up the rupture immediately by means of some iron-wire stitches; the whole wound healed up kindly by the first intention, and the patient has since borne a child without any difficulty. Soon afterwards, however, I was called to see a case in the country where the operation was not thus happily successful. The lady had been delivered by her medical attendant by means of forceps, and during the operation the perineum had been torn, and recto-vaginal septum split up an inch or more above the sphincter. It was just such an accident as sometimes happens in the most skilful hands, and the question was as to what should now be done. Having just seen the good effects of immediate reunion in the other case, I closed the perineum with metallic stitches in this case also; but the issue was not so fortunate. There was no local inflammation set up, but the urine was albuminous; the rapidity of the pulse, which had remained high from time of confinement, never abated; and the patient died in one of the forms of puerperal fever. Perhaps the sewing up of the perineum may not have had much influence in bringing about the fatal result; but it seemed to show that we ought to delay interfering wherever there exists any albuminuria, and whenever the great rapidity of the pulse indicates a tendency to the development of fever in any particular case.

It becomes a question, how long in such a case we should refrain from operating. I believe we may abstain from all interference for eight or ten days at least, until the fever has subsided, and if we then find no attempt at union has taken place we may bring the granulating surfaces into apposition by means of metallic sutures, and hope to find them uniting by second intention. In many such cases a cure has been accomplished, and we may sometimes be warranted in waiting for a longer period ere we apply our sutures. But a high degree of inflammation occurring in the pelvis does not prevent union of the raw surfaces of wounds or incisions in the pelvic organs, as was seen in a patient operated on for vesico-vaginal fistula by Dr. Bozeman in the Royal Infirmary. The fistula was not large, and was easily closed; but on the fourth day she had a shivering fit, and she died of inflammation some days subsequently. On post-mortem examination, the traces of acute peritonitis were easily discernible, and there was a quantity of pus around the bladder But although inflammation had been thus going on all around, the lips of the wound were perfectly adherent; and in cases of rupture of the perineum we need not despair although there are evidences of active febrile reaction, but by carefully keeping the raw surfaces in apposition we may hope to find them at last firmly united. In the large majority of cases of recent rupture we can thus almost ensure the union of the lacerated parts, even when, for perhaps two weeks, there has seemed to be no natural tendency to heal. But occasionally we may fail in securing immediate union; and in a large proportion of cases the injury has been overlooked, the tear heals without union of the surfaces having been effected, the patient suffers from great discomfort in connection with the action of the bowels, and, perhaps, from some prolapsus of the uterus or vagina, and she applies for your advice months or years, it may be, after the injury occurred, and you require to consider what is the best plan of

III. TREATMENT AFTER CICATRISATION WITHOUT UNION HAS TAKEN PLACE.

Operations for the relief of such cases were carried out by Guillemeau, and more recently by Roux, Noel, and others. In America, Mettauer operated successfully, using lead wire for his sutures; and a mass of cases are scattered about in our surgical and gynecological records which sufficiently attest the value of the operation. But it is only of late that it has been fully received as an established operation and described in our text-books; and no doubt we are in great measure indebted to Mr. Baker Brown for bringing it more prominently under the notice of the profession, and developing the details needful to be observed for ensuring its success. All are very much agreed as to the principle of the operation, which consists in revivifying the cicatrised edges of the rupture, as in the operation for harelip, and bringing and keeping the freshly-cut surfaces in apposition until union has taken place. But considerable discussion has taken place as to the manner and extent of the incisions, as to the kind of sutures with which apposition is to be effected and maintained, and as to the necessity of dividing the sphincter ani subsequently, with the view of destroying its tendency to pull apart the raw surfaces.

The operation is not a difficult one. The patient is chloroformed and laid on her back, as in the lithotomy operation, and the knees being flexed and held down by the arm of an assistant at either side, who, with his other hand, keeps the corresponding labium on the stretch, the operator proceeds to

1. *Make a raw Surface.*—He marks out a horseshoe-shaped surface, such as you see represented in this diagram (see Fig. 105), with an ordinary scalpel, and pares away the entire mucous membrane from its whole extent. This is done most easily by passing the knife beneath a thin strip of the mucous membrane at the centre of the area which is marked out for denudation—the point of the knife entering at the anal margin and emerging at the

higher margin within the vagina. If there are no very gre inequalities in the surface, and the assistant can manage to kee the labium sufficiently stretched, the operator may succeed i clearing off the mucous membrane to the requisite extent on o side by cutting outwards and keeping the sharp edge carefully i contact with the deep surface of the membrane. A strip of mucou membrane, the outer margin of which runs along the line of junctio

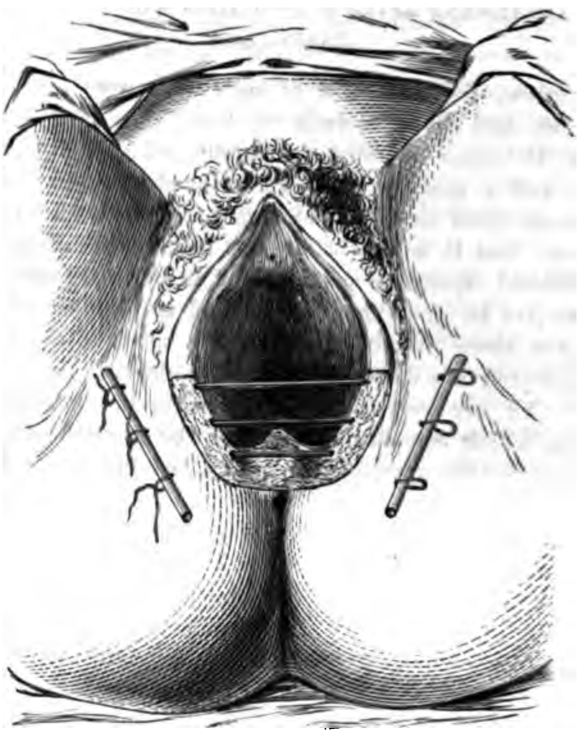


Fig. 105.

between the mucous membrane and the skin, is thus pared, usually, first, from the left labium, and then the opposite labium is made bare in the same manner. A raw surface of a horseshoe shape is thus made, with its two ends at the posterior extremities of the nymphæ, where the wound is rather less than half-an-inch in breadth, whilst at the fourchette it is desirable to have it nearly an inch broad. At this stage it is needful to examine the whole

Fig. 105. Sketch of the operation for ruptured perineum.

raw surface, and make sure that no particle of mucous membrane is left on any spot; and where any traces of it are found they should be pinched up with a pair of forceps and removed, for their presence would hinder the union which the operation is intended to procure. You will find some difficulty occasionally in paring away a proper thickness of tissue, particularly where the recto-vaginal septum has been invaded by the rupture; but even in such a case you will be able to succeed by passing the forefinger of the left hand into the rectum, and keeping the thin septum on the stretch by pushing it forward. In other cases, again, where the rupture has not been so complete, and there has occurred some degree of prolapsus uteri or vaginæ, you may find it needful to extend the surface of denudation upwards along the back wall of the vagina, so as to produce some degree of constriction and occlusion of the canal. Sometimes an artery springs during this part of the operation. But there is no need to do more than apply pressure for a little while with a sponge or a piece of ice. Just wait for a few minutes, and you will find that the vessel has ceased to bleed, and it is very desirable to avoid the introduction between the raw surface of the small slough, which would result from arresting the hemorrhage by means of torsion. Having prepared the surface for union, you have next to

2. *Bring the Edges together.*—In performing this part of the operation you use a long curved needle to introduce two or three threads deeply into the wound. The point of the needle, carrying a strong well-waxed silk or hemp cord, is entered not less than one inch from the outer margin of the incision in the left labium, and is made to emerge just beneath the mucous membrane of the same side before entering the right labium, and traversing it in the corresponding direction. The loop of the ligature is caught by a hook or pair of forceps, and retained in its place while the needle is withdrawn. Mr. Baker Brown operates in this way, and secures these deep stitches over a quill on either side. The greater part of the raw surfaces is thus brought into apposition, but I have usually found that the threads could be felt in the vagina, and I have sometimes brought the vaginal edges of the wound together with stitches introduced by means of a needle, the point of which is curved for an inch, and set at a right angle to the stem (see Fig. 106). The needle is passed through the two sides of the wound, and is then threaded with an iron-wire stitch, which is

left as the needle is withdrawn. Perhaps, by passing one or two stitches in this way deeply into the wound from the vaginal side, we may be able to keep the surfaces in apposition without having recourse to the use of the strong deep-quilled sutures. And it would be a decided advantage if we could dispense with these, because, from the great strain put upon them, they are apt to produce sloughing by the mere pressure which they exert, so that they cannot safely be left *in situ* longer than from twenty to thirty hours; or, if they be not drawn so firmly as to lead to sloughing from pressure, then they begin to absorb fluids, and to set up an inflammatory irritation in their track when allowed to remain imbedded in the tissues. Metallic threads are not available for these deep sutures, because their mere pressure would produce ulceration along their course. In whatever way you have brought the deeper parts of the wound together, you require next to unite the edges of the skin along the middle line of the perineum by a series of interrupted metallic sutures (see Fig. 107); and in cases where the quill sutures

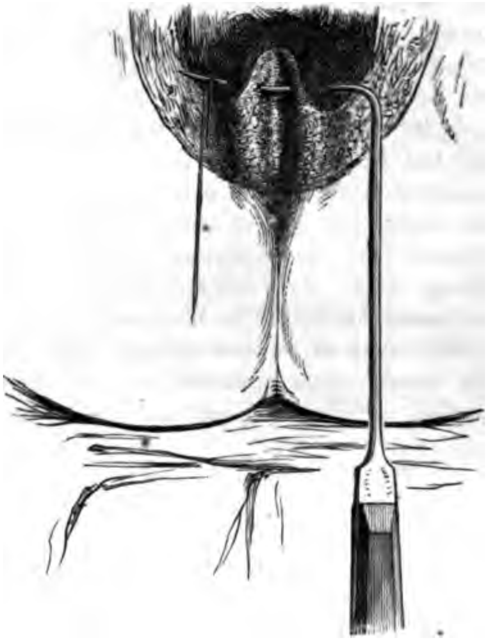


Fig. 106.

Fig. 106. Needle bent at a right angle near the point for introducing transverse metallic stitches in the canal of the vagina.

are not employed, these metallic stitches must be carried deeply through the edges of the wound, so as to bring the whole of the opposed raw surfaces into perfect coaptation. The operation having been thus completed, there are one or two points to be noted in regard to

3. *The After-Treatment.*—The patient must be kept on a low milk diet, and must remain at absolute rest, and lying chiefly upon her side, with the knees tied together, so as to prevent any involuntary separation of the thighs and straining of the perineum. The urine should be drawn off by catheter, and if opiates can be borne they should be administered so as to keep the bowels from moving. It is of the utmost importance that the intestinal canal should be kept at rest, as the evacuation of the bowels at too early a period after the operation might stretch the anus and open up

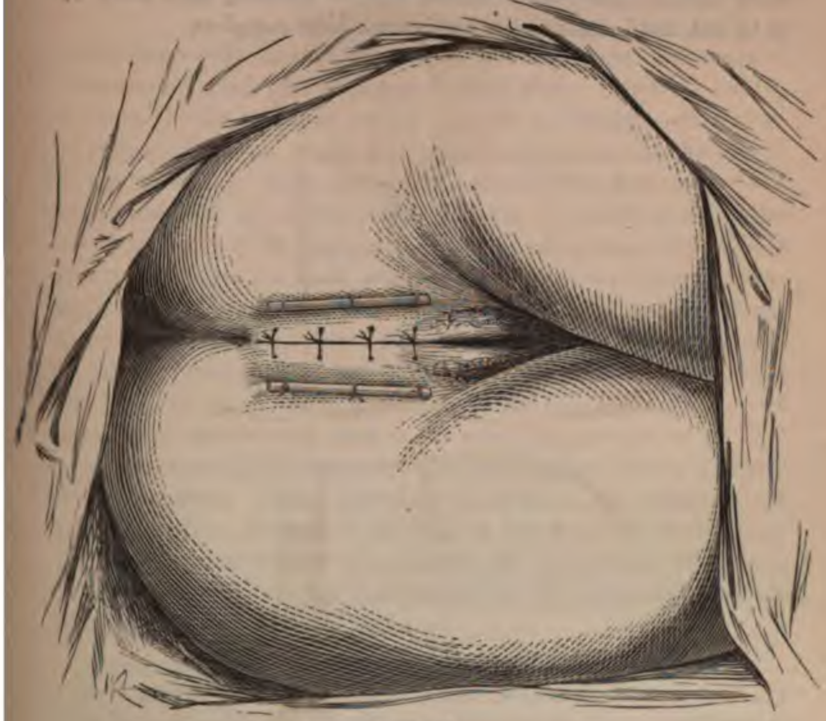


Fig. 107.

Fig. 107. Sketch of the completed operation for ruptured perineum.—(After *Brown.*)

the wound. Until the parts have become consolidated, therefore, ten or twelve days after the operation, the bowels must be kept quiet, and then some gentle medicine should be given, and an oily clyster administered, so as to facilitate as much as possible the evacuation of the rectum. On the first or second day after the operation, according to the degree of strain put upon them, the deep stitches are removed. The superficial sutures remain till the eighth or ninth day, when all the parts will usually be found to have fairly united. The patient should still be confined for a week or so to bed, until cicatrisation has become more complete.

LECTURE XLIII.

ON FIBROID TUMOURS OF THE UTERUS.

GENTLEMEN—The fibroid tumour, known also under the name of "fibrous tumour," and designated "the fleshy tubercle" by Dr. William Hunter, who was the first to give a distinct account of it, is perhaps the most common of the organic diseases of the uterus. It was averred by Bayle that, in one out of every five women who have passed the age of 35, fibrous tumours of greater or lesser size are to be found in the walls of the uterus; and, though his estimate is certainly above the truth, still they are of so very common occurrence that a knowledge of their true pathological nature, of the means of diagnosing them, and of their appropriate treatment, becomes practically a matter of importance. They have received the name of *fibroid* tumours, because, while they consist in a great measure of fibrous tissue, they at the same time contain, as we shall soon see, other highly important elements not met with in ordinary fibrous tumours. Before, however, we enter on an account of the pathology of the disease, let me read to you from the clerk's Case-book the clinical history of a patient, the progress of whose case some of you may have watched during the last winter, but who left the hospital between the sessions:—

CASE I.—J. C., aged 39, married, admitted November 25, 1861.

Antecedent History.—Patient states that she has had three children, the last eight years ago. She says that about four years ago she felt a hard swelling of the size of an egg in the lower part of the abdomen. At that time the menstrual function was quite normal, and it continued so for about two years and a half longer, but then the flow became excessive in quantity, and was attended by very severe pain, the periods, however, observing their natural rate of frequency.

State on Admission.—The patient has a very anæmic sallow appearance, and is very much emaciated. On examination externally the abdomen is found to be enlarged by a hard nodose tumour, which reaches up to the umbilicus, and yields a characteristic uterine souffle on auscultation. A rounded tumour, of the size of a small cocoa-nut, is felt in the vagina, encircled by the dilated os uteri. The menorrhagia continues.

Progress of Case.—Ordered pessaries of persulphate of iron, and to take five grains of bromide of potassium three times a day.

January 9, 1862.—The symptoms latterly have been very urgent. The patient retches constantly, even when the stomach is empty, and immediately rejects everything she swallows. To-day Professor Simpson made an incision through the mucous membrane of the vagina covering the tumour, so as to encourage it to pass down and enucleate itself.

21*st*.—Since the operation patient has been very considerably better.

February 8.—The tumour is now very low down in the vagina, and part of it commencing to slough. Patient is using vaginal injections of a weak solution of chloride of zinc. Ordered medicinal naphtha with compound tincture of cardamoms to check the vomiting, which has been absent for some time, but is now returning.

March 10.—To-day Professor Simpson attempted to remove the lower part of the tumour by the écraseur, but the chain of the instrument broke before complete severance was effected.

April 25.—The exposed part of the tumour is soft and crumbling. There is a considerable quantity of purulent discharge.

May 12.—Patient is very much better. The abdominal tumour is not nearly so prominent, and the bruit on auscultation is gone.

June 20.—Patient is still improving; she takes her food tolerably well, and vomits very seldom. Ordered a teaspoonful of Parrish's compound syrup of the phosphates three times a day.

27.—To-day she was dismissed, very much relieved.

We have at present in our ward two patients labouring under this disease, so that you need not lack opportunities of forming some practical acquaintance with its leading features. The clinical report of one of them is brief, and I shall therefore lay it before you:—

CASE II.—M. J., aged 34, single, factory-worker, admitted October 21, 1862.

History.—Patient states that she had a child about fifteen years ago, and that nothing unusual occurred in connection with her delivery. Three years ago, in consequence, she believes, of mental anxiety, her courses became very profuse, and lasted for a week at a time, causing pains in her loins like those of child-bearing, and so much weakness that she was confined to bed. She also became subject to a discharge of whites during the intervals. These symptoms have continued since. They were ascribed by her medical attendant to ulcer of the womb, and she has been treated with various remedies for that disease.

On admission.—Complains of pain in back and right side, especially at night. Has frequent nausea; appetite is tolerably good; bowels are constipated. Menorrhagia and leucorrhœa have become more severe of late. The cervix uteri is found, on a vaginal examination, to be larger and softer than natural, and the os wide enough to admit the tip of the forefinger. A hard mass is felt in the hypogastric and right iliac regions. On the introduction of a sound, the uterus is found to be anteverted, to measure fully three inches in length. Ordered to take twenty-five drops of liquor secalis cornuti three times a day, and to have a pessary containing bromide of potassium introduced night and morning.

ANATOMICAL, PATHOLOGICAL, AND PHYSICAL CHARACTERS.

There are several points which fall to be considered under this head. Some of these you may suppose matters of scientific interest merely, rather than of practical importance, but they really merit our attentive study, inasmuch as they tend to throw light on the intimate nature of the disease, and to furnish us with sound principles for its treatment.

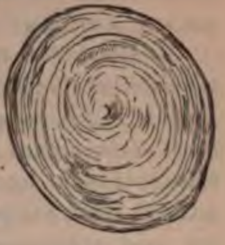


Fig. 108.

1. *Appearance of Section.*—On section the tumour generally presents a very characteristic appearance, somewhat similar to that of a piece of intervertebral fibro-cartilage, and shows a yellowish or greyish matrix containing an agglomeration of narrow white bands, in a more or less concentric form, arranged sometimes in small specimens round a single centre (see Fig. 108), like the thread in a cotton-ball, but more commonly surrounding a number of different centres, so as to resemble a series of cotton-balls united and compressed together (see Fig. 109). The texture is so compact and dense that the cut surface of a fresh

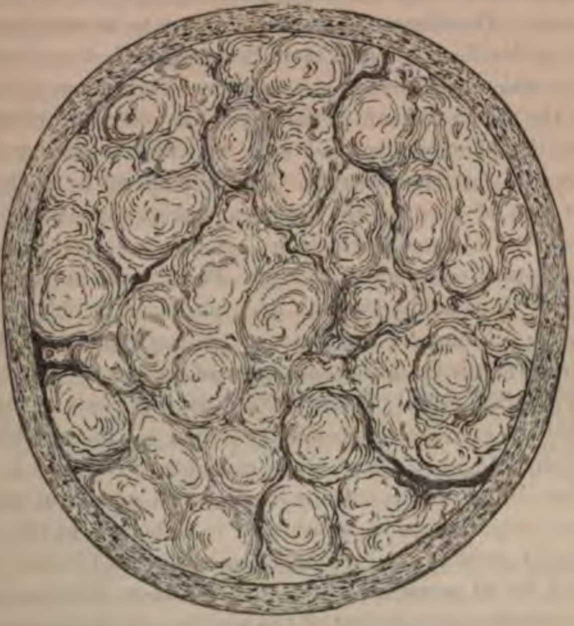


Fig. 109.

Fig. 108. Concentric arrangement of the fibres of a fibroid tumour around a centre.

Fig. 109. Section of a large fibroid tumour, with the fibres arranged round several centres

specimen presents a clear glistening aspect resembling that of cartilage. In rare cases, some few vessels can be seen near the circumference of the section, but, in the great majority of cases, nothing of the sort is visible.

2. *Minute Structure.*—The white fibrous-looking tissue seen by the naked eye is found, when subjected to a microscopic examination, to be in reality composed of bundles of exceedingly fine fibres, like those of the normal fibrous textures of the body. These filaments, though they do not produce an arrangement which is visible to the unaided sight, except in the white bands, are not confined to them, but exist throughout the more uniform matrix also, running in various directions, and not following any definite course. In all parts the spaces between the fibres are occupied by a quantity of long nucleated fibre-cells, which sometimes are rather few in number, but in most cases constitute a considerable proportion of the bulk of the tumour. The fibrous tissue proper seems to be sometimes very imperfectly developed; for, in their *Pathological Anatomy*, Jones and Sieveking make the following statement:—"The microscopic appearances of the fibroid tumours of the uterus are not in accordance with what we should expect to find in a true fibrous structure. The microscope, in fact, demonstrates that they belong to an altogether different class of growth; the fibrous appearance is scarcely perceptible under the microscope, which displays elongated nuclei, imbedded in an amorphous stroma;" and Mr. Paget says, in his *Surgical Pathology*—"Commonly, too, one finds nuclei or cytoblasts strewn through the substance of the tumour; the less abundantly, I think, the more perfect is the fibrous character of the tissue."

3. *True Pathological Nature.*—Now, it is a point of no small moment, with reference to treatment, to find out the real histological and physiological type of these elements. We used to labour under the idea that this tumour is one which admits of palliative treatment only, because we considered it to belong to the class of heterologous growths; but a change has taken place in our views of late years, for all recent investigations go to show that its structure is essentially the same as that of the middle coat of the uterus. It is many years since Vogel divided fibrous tumours into three classes—namely, "tumours of areolar tissue, tumours of fibrous tissue, and tumours of simple muscular fibre," according as one tissue or another predominated, and remarked, in his *Pathological Anatomy*, translated by Day—"It is interesting to observe that independent tumours of simple muscular fibres (fibroid), so far, at least, as my

experience reaches, are only to be found where in the normal condition, simple muscular fibres were previously existing, as in the substance of the uterus, which is their most common seat." Dr. Bristowe, in a paper published in the *Transactions of the Pathological Society of London*, in 1853, stated, as the opinion he had arrived at from the microscopic examination of fibroid tumours, that "all the so-called fibrous tumours of the uterus are essentially muscular tumours, not simply fibrous tumours, containing a greater or less quantity of muscular fibre mixed up with them, as Mr. Paget seems to think but developments of true and undoubted muscular tissue," and that the histological resemblance of the tumour to that of the uterus was so great, "that it was quite impossible to say of any specimen observed under the microscope, whether it was taken from the normal or from the abnormal structure." Again, the following passage occurs in Mr. Paget's *Surgical Pathology*:—In fibrous tumours "in the uterus (just as in the uterus itself), smooth or organic muscular fibres are more or less abundant. I have not, indeed, seen such a specimen as would justify the name of 'muscular tumours,' assigned by Vogel; but the mingling of muscular fibres, in imitation of tumours of the uterus, is usual, if not constant, in these tumours." (See Fig. 110.) Lastly, in Virchow's *Cellular Pathology*, translated by Dr. Chance, page 443, it is stated, "We find, for example, that the so extremely common form of uterine tumour, which has been designated fibrous or fibroid, has in every respect the same structure as the hypertrophied uterus has, inasmuch as it consists not only of fibrous connective tissue and vessels, but also of muscular fibre-cells." The uterine fibroid in fact serves, in that great pathologist's scientific classification of the different forms of morbid growths as the type of the Myomata or Muscle-tumours. The fibres, then, are simply those of ordinary connective tissue, and the nucleated fibre-cells are nothing more than the elements of involuntary muscle. But how does this alter our notions as to their curability? Why, knowing as we do that the great mass of muscular matter developed in the uterus during pregnancy gets almost entirely absorbed within six or seven weeks after deli-

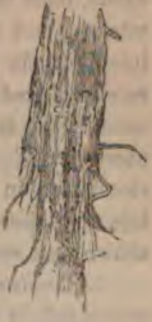


Fig. 110.

Fig. 110. Minute structure of a uterine fibrous tumour. Narrow smooth muscular fibres project from the edges of a fibrous tissue. Magnified about 400 times.—(*Paget.*)

very, we are led, from the very nature of the fibroid tumour, to entertain a hope of the possibility of *its* disappearing by absorption too. There are indeed few of us who have not seen instances where large tumours have spontaneously diminished, and even become almost wholly removed; but we had been taught to believe that in such cases we had mistaken mere hematomata, or inflammatory enlargements, for real fibroid growths. For a long time, moreover, they were confounded with deposits of a carcinomatous nature, and every woman who was ascertained to have a hard solid tumour of the uterus was considered to be the subject of malignant disease. It is well known in the present day that they possess none of the distinctive characters of malignancy, either in their microscopic structure or in their effect on contiguous parts, and that it is very rarely you find them developed in the cervix uteri, or producing ulcerations and fungosities, as cancer is so apt to do. It may be true that in a few rare instances carcinomatous degeneration has been found in the tumour, or near it; but that is no proof that the tumour is of a cancerous nature, any more than you can say that the ordinary tissue of the uterus is cancerous because a cancer is sometimes found in it.

4. *Vascularity.*—With regard to vascularity considerable variety exists, most of the tumours being possessed of but a low degree of vitality, and so sparingly provided with vessels, that little or no injection can be made to penetrate their substance; while a few receive almost as abundant a supply of blood, and become as deeply coloured by matters thrown into the arteries leading to them as the uterus itself. For a long time it was thought that there was no circulation in them at all, because of the supposed impossibility of injecting them; but improved methods and additional care have shown that such an opinion is not strictly true.

5. *Consistency of the Tumours.*—The more vascular of them are rather soft in texture, and resemble in appearance and consistency the walls of the unimpregnated uterus; but as a general rule they are extremely firm and resistant to the touch, like ordinary fibrous tumours in other localities. They are, as a general rule, solid throughout; but when they grow in a situation where they are not much subjected to pressure, we occasionally find numerous cysts in them, especially towards the centre of the mass, containing usually a serous fluid mixed up with the debris of disintegrated structures, and some points are then firm to the touch, while others are soft and fluctuating. A cyst sometimes, though very rarely, attains

such dimensions as to contain many pints of liquid, and simulate ovarian dropsy; and in fact the operation of tapping has several times been performed under such circumstances.

6. *Their Form and Number.*—They are generaly roundish or oval, if not interfered with in their growth, but are liable to be greatly modified in form by the pressure of surrounding parts. Very often you feel the surface irregular and nodose, as if from the formation of new growths on the exterior of the primary one; and such is no doubt the correct explanation of this peculiarity of figure, for it is a marked feature of the disease that the tumours tend to multiply, insomuch that it is quite exceptional to find only one, and the number present in a uterus is sometimes surprisingly great (see Fig. 111.)

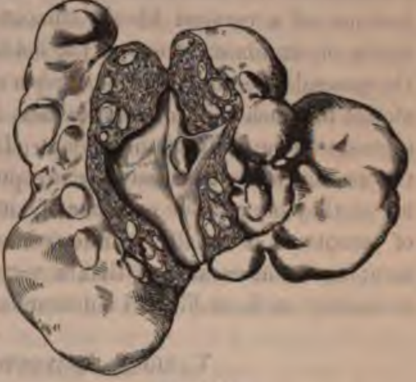


Fig. 111.

7. *Size and Weight.*—They differ very much in size, some being as small as a pea, and weighing only a few grains, while others have been found much larger than the pregnant uterus at the full time, and equal in weight, in well-authenticated cases, to fifty, sixty, and even eighty pounds. You often meet with large and small tumours interspersed in the same uterus, and the larger of them often seem made up of a number of smaller specimens.

8. *Capsules.*—Each tumour is surrounded by a distinct capsule of condensed uterine tissue, to which it is attached by a loose areolar structure; but the connection between the two is usually so slight that you can easily turn out the tumour with the handle of a scalpel after an incision has been made into the enveloping sac. When, as often happens, two or more tumours seemingly coalesce, these capsules remain in the form of imperfect partitions or dissepiments between them.

9. *Site.*—There has been considerable discussion as to the site of fibroid tumours, as to the part of the uterus from which they spring. As a rule, they grow from the middle muscular wall in some part of the fundus or body of the uterus. It was at one time

Fig. 111. Uterus studded with fibroid tumours of many different sizes.

supposed that they were common in the cervix, but all later investigation belies this idea, and shows that even where they seem to be growing from the cervix they have originated higher up, and only press their way down into it in process of growth. There is a preparation in the Hunterian Museum, described by Baillie as an instance of a cervical fibroid tumour; but when I had an opportunity of examining it out of the bottle it proved no exception to the general rule, for whilst it pushes aside the cervical tissues so as almost to reach the mucous surface, it takes origin from the lower segment of the body of the uterus. In relation to the thickness of the uterine walls, they may occupy three different sites, and according as they occupy one or other of these positions a different group of symptoms is usually manifested, and a different kind of treatment made necessary, so that a very convenient Classification is commonly made of Fibroid Tumours according to their

VARIOUS ANATOMICAL SEATS.

If you look at a diagram of a section of the uterus you will see that its surface is covered with peritoneum and its cavity lined with mucous membrane, whilst the intervening space constituting the wall is composed mainly of the muscular tissue. Now, whilst these myomes, or muscular-fibre growths, all take origin in the middle coat, they sometimes grow from its outer surface, and are then

1. *Sub-peritoneal.*—In this variety the tumours lie, as their name implies, between the muscular coat of the uterus and the peritoneum, without receiving any, or only a very thin, covering of the proper uterine tissues (see Fig. 112.) They tend to separate themselves from

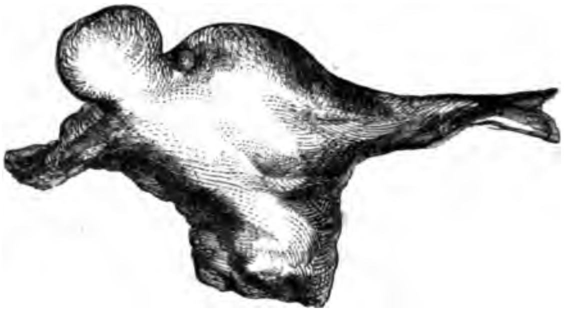


Fig. 112.

Fig. 112. Projection of a sub-peritoneal fibrous tumour.

the uterus as time wears on, but still retain their vascular connection with it by means of a pedicle exhibiting the same structure as the tumour itself, and, like it, enveloped by peritoneum. I have, however, seen several cases in the dead body where the inter-communication had entirely ceased, from the pedicles having become so slender as to give way under some strain upon them, and the tumours were lying free in the abdominal cavity. The sub-peritoneal are the largest of the three varieties, as you would expect, since they are the least subjected to restraining pressure from the surrounding tissues; but when they become polypoid, as they may do before attaining any considerable size, the nutrition they receive is necessarily rendered more limited, and their growth is correspondingly checked.

2. *Intramural.*—When imbedded in the walls of the uterus, or Intramural, as they are called, they are generally smaller in size, and of firmer consistence (see Fig. 113.) In accordance with a law that the chief addition to their size takes place at the points where their growth is least opposed by the resistance of neighbouring structures, they generally increase more towards the exterior of the uterus than in the direction of its cavity. As they enlarge, they usually produce an effect on the uterus, which is less marked though not entirely absent, when there are only sub-peritoneal tumours present; they stimulate it, namely, to greatly increased nutrition, so that, instead of being thinned and stretched over the tumours without any actual increase of volume—as does occasionally happen—each half often becomes, notwithstanding its expansion, thicker even than the entire wall in the natural condition, with an abundant development of muscular fibres and

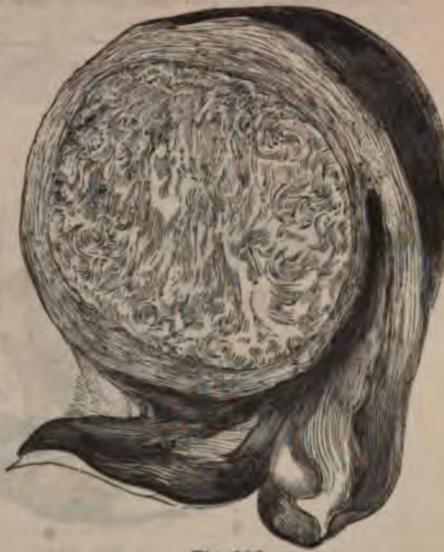


Fig. 113.

Fig. 113. Intramural fibrous tumour.

contractile power, such as you see in pregnancy. At some spot the uterine investment, where it may happen to be thinnest, sometimes yields before the muscular force exerted by stronger portions, or in consequence of its development failing to keep pace with increased activity of growth in the tumour, becomes stretched and attenuated till the latter reaches either the peritoneum or the mucous membrane, and comes to belong to one of the other two varieties. But the hypertrophy and expansion of its walls are not the only, nor in a diagnostic point of view the most important changes in the uterus which result from the presence of the morbid growths, for in the great majority of cases the cavity also becomes elongated and enlarged, often to the extent of one or two inches, and sometimes as much as six or eight. Moreover, its figure and position are variously affected, according to the dimensions, site, and number of the tumours—retroversion, anteversion, depression, elevation, and distortion being all met with more or less frequently in the disease. If the tumours be situated low down in the uterus, the cervix will besides be found hypertrophied to some extent, and the os in general more or less dilated.

3. *Submucous*, or *Intrauterine*—is the name given to the class of tumours which are situated between the uterus and its lining mem-

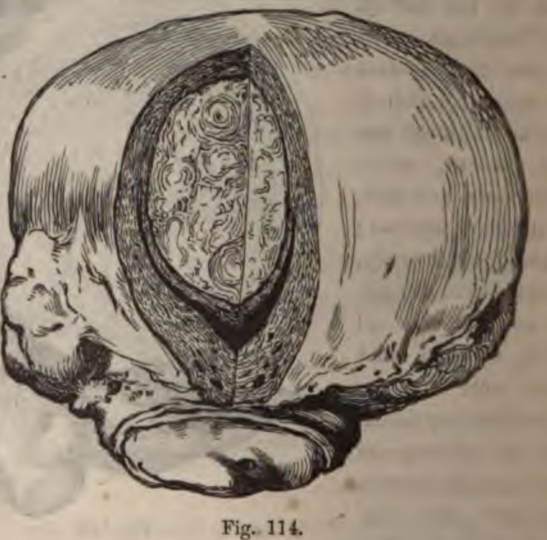


Fig. 114.

Fig. 114. A submucous fibroid tumour projecting into the cavity of the uterus, which is exposed by a longitudinal section.

brane, analogous so far to the first-mentioned variety, but lying on the inner surface of the uterine wall in place of being on its exterior, and having a mucous instead of a peritoneal covering on their free surface (see Fig. 114.) Still more than intramural fibroids they lead to enlargement of the uterus with elongation of the cavity, though in some rare cases the latter may seem to be even shorter than natural, from the tumour filling up the cavity in such a way as to hinder the entrance of the uterine sound. They are not so apt as the previous class, however, to cause displacement or deformity of the uterus, from the hypertrophy around them being more equable. Like sub-peritoneal fibroids, they tend to become pediculated in the course of their growth, and then they constitute the ordinary fibrous polypi of the uterus. The mucous membrane around them sometimes retains its normal characters, more generally, however, becoming hypertrophied and highly vascular, and it seldom shows much tendency to ulcerate or slough, as in the case of malignant disease.

Any two, or all the three varieties may co-exist in the same individual. The sub-peritoneal, and still more the sub-mucous, are those which lead soonest and most persistently to distressing symptoms; whilst the intramural growths may attain a large size without having produced any disturbance sufficient to attract the patient's attention.

LECTURE XLIV.

ON FIBROID TUMOURS OF THE UTERUS.

TRANSFORMATIONS.

FIBROID tumours are liable to various transformations, some of which are of the greatest clinical importance. It was at one time imagined that they were liable to undergo

1. *Carcinomatous Degeneration.*—I have already stated that they used frequently to be confounded with carcinoma uteri. A uterine fibroid is hard and dense, and hardness and density were looked upon as characteristic of cancer in this organ. Baillie and others described cases where fibroid tumours were supposed to ulcerate and undergo a change into a kind of fungus; and Cruveilhier seemed inclined to believe in their malignant degeneration as an occasional feature of their natural history. But all recent observation tends to show that any such degeneration is altogether exceptional—so rare that you need never anticipate it in forming your prognosis of any particular case. If you had to do, indeed, with a patient of a cancerous diathesis, it is just possible that a uterine fibroid polypus might excite a kind of irritation in the uterus that would lead to the occurrence of malignant disease in it, as the irritation of the pipe is believed to excite epitheliomatous disease in the lips of a habitual smoker; and it is quite certain that malignant disease may co-exist with fibroid tumours in the uterus. In the ward, for example, some time ago, a poor woman died of exhaustion from the hemorrhage and long-continued discharge coming from an epithelial degeneration in the mucous membrane of the body of the uterus: and on post-mortem examination we found, in addition to the malignant disease which had been diagnosed during life, a small fibroid polypus projecting from the fundus uteri. But though the fibroid tumour, as being a parasitic structure possessing only a low degree of vitality, might be conceived to be subject to carcinomatous disease, such a kind of degeneration is so altogether exceptional, as I have already explained to you, that you are not to regard its

occurrence as part of the natural history of fibroid tumours. A more desirable change, however, you may expect to find occurring in them, for they sometimes become the seat of

2. *Fatty Degeneration.*—You have been made aware how the retrogressive changes in the uterus subsequently to delivery are brought about by a process of fatty degeneration being set up in the muscular fibres which leads to their disintegration and dissolution (see Fig. 97, p. 587). Now clinical observation teaches us that, in patients who are the subjects of fibroid disease of the uterus, the masses sometimes diminish in size in a very marked degree, and in some rare cases even disappear so completely that their presence can no longer be detected by physical examination. When we examine fibroid tumours, which are found on making post-mortem investigations, we can occasionally see that the fibres have become filled with fatty particles, and are undergoing fatty degeneration as distinctly as in the puerperal uterus; and I believe that in many of the cases where we can trace a reduction in size of these morbid growths, the diminution goes on in consequence of fatty degeneration taking place to a greater or less degree in its structural elements.

3. *Inflammatory Changes.*—The change that I have been referring to occurs very gradually; but there are other changes which take place with greater rapidity when the tumours become the seat of inflammatory action. When inflammation is set up in them, they become œdematous, and exchange their dense resistant feeling for a degree of softness and elasticity, that reminds one of dropsical tumours of the ovary. I might have stated to you that in some cases of what seem to be large fibroid tumours of the uterus, the structure is less compact and firm than what I have described to you as the uteral texture of this form of morbid growth, but it is doubtful whether we are to regard these as true fibroids, though they have many common features, and are amenable to the same kind of treatment. What I speak of now, however, is a more sudden transformation occurring in fibroids which you have already ascertained to possess all the physical and functional features of undoubted myomata, which may arise under various circumstances, but most frequently, perhaps, immediately subsequent to parturition. Then we occasionally see fibroid masses inflaming, becoming soft and œdematous, even becoming gangrenous and sloughy, so that there may be, as it were, a life-and-death struggle in the system, and you hardly know for a time whether nature will succeed in separating and eliminating the gangrenous mass, or the constitution will sink

exhausted in the process. I have told you that these tumours are possessed of a low degree of vascularity. Large veins can be seen immediately surrounding them, like the sinuses of the pregnant uterus, but the arteries that enter them are small; and if you look at a preparation injected with vermilion, you see a marked contrast between the red vascular walls of the uterus itself, and the white mass traversed with streaks of red which is imbedded in their substance. When inflammation from any cause is lighted up in the tumour, it seems to me as if the surrounding veins got compressed from the resulting swelling; and the circulation becoming impeded, and the tumour in some measure strangulated, mortification and sloughing of necessity ensued. However it may be brought about, we know that when gangrene has taken place, the muscular action of the uterus is called into play for the separation and expulsion of the irritating body, by the process which has been described as

4. *Spontaneous Enucleation.*—Sometimes we find the history of a case of fibroid tumour of the uterus terminating in its spontaneous expulsion, and that not only where inflammation comes on after delivery, but in other cases also, or independently of it. For, as I have stated, the muscular walls of the uterus have a tendency to grow and become hypertrophied round any body which is found within the organ, whether it be a physiological or a pathological product, or have been introduced from without; and you will find no more frequent or more remarkable instances of this kind of uterine hypertrophy than in cases of fibroid tumours of the organ. The action of the developed muscular bundles is called into play when the tumour becomes the seat of inflammatory irritation, or when it has grown downwards through the cervix uteri; and if the growth be not too deeply imbedded in the walls of the uterus, the result may be

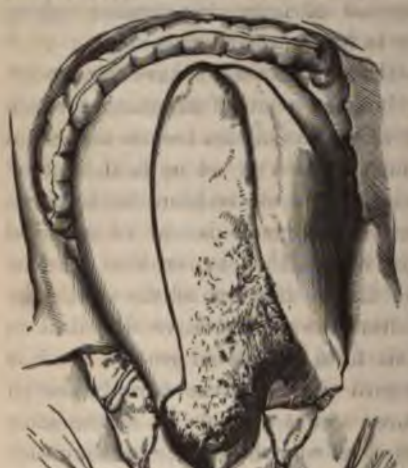


Fig. 115.

Fig. 115. Fibroid tumour in process of spontaneous enucleation.

that it is expelled, sometimes only after ulceration to a considerable extent has taken place over its mucous surface (see Fig. 115). One of Cruveilhier's plates represents a fibroid tumour undergoing elimination in this way; and I have seen a number of cases of this kind where gangrene having been produced in a fibroid tumour, uterine expulsive action was set up, which pushed the mass downwards toward the os, where it could be laid hold of and removed, and even where the expulsive efforts of the uterus alone sufficed for its complete elimination.

5. *Cartilaginous and Calcareous Degeneration.*—Besides these changes, which may take place with some degree of rapidity, there are others which take place more slowly, and chiefly in women who have already passed the climacteric period. In some old women the uterus is found after death to have become of cartilaginous firmness, and the seat at different points of calcareous deposits. In like manner we see fibroid tumours which have ceased to grow, becoming the seat of cartilaginous and calcareous degenerations, which may affect only some parts of the morbid mass, or may pervade its whole extent. We see this change occur in the smaller or medium-sized tumours more frequently than in those of larger dimensions, though we can never predict in what kind of tumour it will occur. But it is one of the most satisfactory ways in which nature brings to an end the history of any case. We have seen two other ways in which nature may lead a case of fibroid tumour of the uterus to a favourable termination—viz. 1, where fatty degeneration and absorption take place; and, 2, where muscular action takes place in the uterus, ending in the expulsion of the tumour. Here we have a third way, and after calcareous or osseous degeneration sets in in a fibroid tumour, it shows no tendency to increase more, but, on the contrary, its size lessens, the symptoms of distress it once gave rise to may subside, and the tumour remains latent. Perhaps we may look upon such a change as a sign of the death of the tumour. We know that similar changes take place in connection with certain parasites after their death in the living body. The cyst of the trichina spiralis, for example, becomes the seat of a calcareous deposit after the worm is dead, and a fibroid tumour, which has become thus affected, we may regard as having reached its acme and the end of its life, and expect that its growth will now cease. It does not, however, always remain latent all through life afterwards; for if it project into the uterine cavity, uterine action may be set up, which will lead to its expulsion like a foreign body. Of this nature are those cases which you meet with,

described in ancient records as instances of "uterine calculi" or "womb-stones." I have seen their expulsion attended in two or three instances with intense pain. In one patient, the near relative of a medical practitioner, pains came on regularly every twenty-four hours, when the stone was pushed into the os uteri and again retracted.

ETIOLOGY.

The various investigations that have been made, with a view to discover the cause of the development of these tumours in the uterus, have as yet led to no satisfactory result. We only know that they seldom originate after the climacteric period, and occur most frequently between the ages of thirty and forty-five. The suggestion which has been thrown out by a French pathologist, that they derive their existence from an ovum getting imbedded in the substance of the wall, is not for a moment to be entertained. It has been supposed that they resulted from inflammations occurring in the uterus; but though we may find them growing in cases where inflammation is also present, there is no necessary relation of cause and effect between them. Probably, when tumours are once formed, they go on multiplying, in accordance with the law that the presence of a foreign body excites the uterine walls to hypertrophy around it. But we do better to confess our ignorance than to busy ourselves with vague and valueless hypotheses. Let me go on, therefore, at once to point out to you the kind of symptoms which are caused by the presence of fibroid tumours, and which will lead you to suspect the nature of the patient's malady.

SYMPTOMATOLOGY.

Like other affections of the uterus, this disease gives rise, in some cases, to no symptoms whatever, further than an enlargement of the abdomen proportionate to its bulk, while in others it occasions much suffering. The same thing is constantly being exhibited in the case of pregnancy, and is true even of cancer. I saw a case of cancer of the uterus a few days ago, where the only symptom was a slight discharge of blood now and then, and the patient looked the very picture of health. I have even seen a case where the posterior wall of the bladder was entirely eaten through by cancer of the womb, and yet there was no local uneasiness whatever, and little or no constitutional disturbance. You will sometimes discover a fibroid tumour when you are examining the uterus for another disease entirely. In some cases, no idea is entertained by the patient that she is the subject of disease at all, and it is only post-mortem dissection that reveals the presence of the morbid growth. The sub-peritoneal variety often produce no inconvenience whatever, except what is dependent on their bulk. In this way it often happens that the patient only discovers by accident, as it were, that she is the subject of any disease. One of the most striking examples of this that I ever met was in the case of a young unmarried lady, a governess, whom I saw many years ago. Everybody was talking of the tremendous blunder which had been made by a distinguished obstetrician, in having diagnosed pregnancy in the case of one of her Majesty's maids of honour, who was the subject of an ovarian tumour. It seemed as if many women were led to examine their own abdomen, and in this way, the young lady of whom I speak first had her suspicions aroused; and although she had never suffered from any kind of discomfort, the uterus was found enlarged to the size of a uterus at the full term of pregnancy, from the growth in its walls of a large fibroid tumour. They may thus grow to an immense size without exciting any suspicion or giving rise to any marked symptom; although, on the other hand, they may, even when small, give most unmistakable evidence of their existence. You will, therefore, not look for any symptom pathognomonic of fibroid tumours of the uterus, for none exists; but there are certain morbid phenomena of common occurrence in the disease which should lead you to institute a local examination, and thus adopt the only means capable of establishing a sure diagnosis.

1. *Enlargement of the Abdomen.*—If the tumour be small, no enlargement may be discoverable, while in some cases the abdomen is found enormously distended.

2. *Disturbance of the Functions of the Uterus.*—The uncertainty of the conclusions to be drawn from the modifications of the uterine functions is illustrated in the case of none of its morbid affections more strikingly than in the case of fibroid tumours.

1*st*, *Menstruation.*—The monthly discharge in many cases goes on regularly, and escapes in normal quantity, without any notable alteration. In other cases there is a more or less pronounced degree of amenorrhœa. This diminution in the quantity of the menstrual discharge, or in the frequency of its recurrence, is, however, extremely rare, and is usually found only in the sub peritoneal and intramural varieties. Dysmenorrhœa sometimes results, especially in cases where the free exit of the blood is interfered with from the pressure of the growth. But in the greatest proportion of cases the disturbance of menstruation is indicated by the increase in the quantity, and by the frequency of its recurrence. Often enough the menorrhagia is the symptom which first alarms the patient; and in the worst cases the discharge of blood may go on almost constantly, coagula occasionally escaping along with the fluid, till the woman becomes blanched and anæmic to the last degree. This menorrhagia may be caused by tumours of most varying size; but the variety of tumour of which it is the most frequent accompaniment is the submucous, or the intramural, when the latter grows towards the mucous surface. You can understand why there should be a tendency to such excessive hemorrhage when you remember how the walls of the organ enlarge around the morbid mass growing within them; and in this hypertrophy the mucous membrane which lines the enlarged uterine cavity shares, so that the distended blood-vessels in it, as well as on the surface of the tumour, are ready to pour out immense quantities of blood under the stimulus of ovulation—all the more if ulceration occur in the surface of the tumour and some of the vessels become eroded.

2*d*, *The Intermenstrual Secretion* may be unaffected; but in many cases leucorrhœa is set up, and when it occurs to a great extent it adds to the depressing effects of the menorrhagia, and exhausts the more rapidly the patient's strength.

3*d*, *The Reproductive Function.*—You will readily understand that the presence of these morbid masses in the uterus interferes with its performance of the important part it has to play in the propagation of the species, so as to render women who are the subjects of them sterile in a greater proportion than usual. For it is estimated that one in six patients thus affected remains sterile, whilst the proportion of sterile women in the general population is one in ten. We find, moreover, that their fecundity is diminished; and women with fibroid tumours rarely have large families — usually only one child or two. For, even when conception has taken place, the uterus is often incapable of undergoing the usual changes of utero-gestation, and the patient aborts in the early weeks, or miscarries at a later period; and if the patient goes to the full time, the tumour, particularly when it is seated low down in the uterus, may greatly impede the process of parturition, and endanger the patient's life. Women who are the subjects of fibroid tumours are thus liable to have few children, or none at all; but please remember that their presence is no necessary hindrance to impregnation. Perhaps you may have charge of a patient whom you know to be labouring under a large tumour of this kind, and in whom you notice the growth swelling and becoming softer. You may be inclined to suppose that some strange pathological change is occurring in it, till, on applying the stethoscope, you hear the sounds of the fœtal heart.

3. *Derangement of Neighbouring Organs.*—Besides the symptoms dependent on derangements in the uterus itself, we have another group due to pressure on the organs in its vicinity. In all stages of their growth these fibroid tumours may sometimes exert such a kind and degree of pressure on the other pelvic organs as to cause discomfort to the patient; and the symptoms thus produced are greatest in the cases where the tumour grows to a large size within the cavity of the true pelvis, where it sometimes attains such a bulk that it cannot easily be pushed through the pelvic brim. Where the tumour grows from the anterior wall, the *Bladder* is pressed upon, and the patient is troubled with frequent calls to micturate, or becomes the subject of dysuria. Where the tumour is of such dimensions as nearly to fill the pelvis, or to obstruct the brim, the patient is sometimes distressed by a total inability to pass water, and she may suffer from retention of urine at every menstrual period or under any circumstances that lead to congestion of the uterus, so as to demand the occasional use of the catheter for her relief. Where, again, the tumour grows from the back wall of the uterus, the functions of the *Rectum* are more apt to be disturbed, and the patient suffers from habitual constipation, and has difficulty in evacuating the bowels, or more rarely suffers from a sort of mucous diarrhœa. Sometimes, in consequence of the pressure on the *Blood-vessels*, hemorrhoids form and add to the patient's discomfort, or the limbs become varicose or œdematous. There may be such a degree of pressure, further, on the *Pelvic nerves* as will interfere with the power of progression, and cause numbness or crampy pains in the lower extremities.

4. *Local and Sympathetic Pains.*—Fibroid tumours are in themselves quite insensible, and the uterus which is the seat of such a growth is not necessarily more sensitive than a healthy organ. But, besides the local pains which they are apt to excite by their mere pressure, patients who are the subjects of them occasionally suffer from sympathetic pains under the mamma, and in other places, as in the case of a patient whom I saw lately with Dr.

Andrews, in whom the chief symptoms are menorrhagia and neuralgic pains nearly over the whole body. There are two conditions to be remembered, as giving rise to spontaneous pain in the uterus itself, or which make it very sensitive to the touch. For, first, the contractions that are set up in the walls of the uterus, when nature makes an effort at the extrusion of these growths, being the same in kind as the contractions of the parturient uterus, are attended, like these, with pain, intermittent in character, and recurring sometimes with a frequency which greatly alarms the patient, and leads her to suspect the existence of malignant disease. Then, secondly, we not unfrequently find inflammation occurring in the walls of a uterus which is studded with fibroids, or attacking its peritoneal surface. In this case the organ becomes very tender and resentful of pressure, so that the patient becomes incapable of much exertion even after the acuteness of the attack has subsided; and where metritis or perimetritis has once been set up in a patient suffering from fibroid tumours, the inflammation is specially liable to become troublesome by its resistance to all kinds of treatment, and its strong tendency to recur. I might speak of a variety of

5. *Functional Symptoms in Distant Organs.*—I might tell you of the impairment of *Digestion*, and the interference with the *Respiration*, amounting sometimes to dyspnœa or orthopnœa, resulting from the presence of fibroid tumours of large dimensions. The *Circulation* becomes affected also in many cases, and you may have œdema of the lower extremities, or varix from the pressure on the veins; or palpitation comes on where there has been much loss of blood. The *Mammæ* sometimes become enlarged, and the areola broadens and darkens as in the early months of pregnancy. I might run over thus the whole list of the functional symptoms with which you are acquainted, as betokening the various changes, physiological and pathological, of the gravid and morbid uterus, for all of them may in special instances be traced to the existence of a fibroid tumour. But I need not dwell on these; for the symptoms of which I have spoken at length are the most characteristic. I am anxious to impress upon you the importance of remembering that you can never be warranted in concluding that you have to do with a case of fibroid tumours of the uterus from the presence of any symptom or group of symptoms. You may guess at the nature of the case, and where the functional disturbances are present in a very pronounced group, you may form a diagnosis of presumption, which, in your own mind, amounts almost to certainty; but you can never feel quite

satisfied as to the real nature of the case, and you dare never give a decided opinion to the patient without having recourse to a personal examination. Let me ask your special attention, therefore, to the means to be adopted and the information to be acquired in making a

PHYSICAL DIAGNOSIS.

As the conditions vary, according as the affected organs and the morbid growth are still confined to the cavity of the true pelvis, or have risen above the pelvic brim and taken a place among the abdominal organs, allow me to point out to you how you should proceed in making your diagnosis of

A. PELVIC FIBROID TUMOURS.—If there be no abdominal enlargement in the case of a patient who comes to you complaining of the train of symptoms which I have described, you will suspect that the tumours are small and still confined to the pelvis, and you will correct or confirm your diagnosis by

1. *Digital Exploration.*—On introducing the finger into the vagina you may find the uterus lying unusually low in the pelvis. For this is the first effect of any increase to the weight of the uterus, that it sinks somewhat, and gives rise to that feeling of weight or bearing-down which is such a constant accompaniment of uterine troubles. If the uterus has never been gravid it is usually firm and hard, and on passing the finger or fingers behind the cervix uteri, or in front of it, the firm fibroid nodule can in most cases be easily enough felt. When the finger feels a round hard projection on some part of the uterine walls, or if there be a series of nodose irregularities on the surface of an easily movable uterus, you may be pretty certain that you have to do with a case of fibroid tumours. But you require to apply the left hand over the abdominal wall above the pubes, so as to ascertain that the fundus uteri is in its proper situation, neither anteverted nor retroverted; and by then using some degree of pressure, you can, unless the parietes of the abdomen are unusually thick, define satisfactorily the condition of the uterus, and determine the size and situation of any tumours growing in its walls. In some cases it may even be necessary to examine by the rectum, or with one finger in the rectum and another in the vagina, at the same time that the left hand is applied externally. In some cases you are obliged to have recourse, further, to

2. *The Use of the Sound.*—Where the patient is very stout, or where from other causes you find difficulty in making a combined external and internal examination, you will remain in uncertainty

whether you have to do with a fibroid tumour on the back wall or with a retroflected fundus uteri until you introduce a sound into the cavity, when the difficulty at once disappears, and the nature of the case becomes perfectly clear. For if you have a fibroid tumour there, the sound passes easily into the uterus in its normal direction, and the tumour remains unchanged when the sound has reached the fundus; whereas, in case of retroflexion, the point of the sound gets caught at the os internum, and must change its direction and be passed backwards so as to enter the cavity of the uterus; and if it be then turned into the proper axis of the pelvis, the finger in the vagina feels the suspected tumour moving away to take the proper position of the fundus uteri. When no complication is present, the diagnosis of fibroid tumours confined to the pelvis is thus comparatively simple and sure; but it is not quite so easy to decide when we have to do with

B. ABDOMINAL FIBROID TUMOURS.—When they are so large as to have risen up into the abdominal cavity, there is often great difficulty in distinguishing them from the gravid uterus on the one hand and from ovarian tumours on the other; and yet, as you may well believe, it is of the last importance, both as regards the prognosis and the treatment, that you should be able to make a correct differential diagnosis.

1. *Abdominal Palpation.*—On manipulating a uterus enlarged from the presence of a fibroid tumour, you feel it to be hard, dense, and unyielding in its texture; and if there be a group of tumours, as is most frequently the case, you will note the inequalities of the surface, and remark that each of the projections is equally solid and firm. If the surface be thus irregular and bosselated, you distinguish it at once from the gravid uterus. But where there is only one tumour, or at least only one which has attained a large size, its smooth rounded outline may be precisely like that of the uterus in an advanced state of pregnancy. If you keep your hand applied to a gravid uterus, however, you will observe a peculiarity which distinguishes it from the pathological hypertrophy. For, though the uterus feel at one time firm and resistant, yet on continued manipulation you find it becomes softer and more yielding. When the muscular fibres are thrown into contraction, to wit, it feels hard, but when they relax the walls soften, the tumour is found to be more fluctuating, and perhaps the various parts of the fœtus may be perceived. Remember, therefore, never to be satisfied with the first impression you gain from the palpation of any large abdominal

tumour, but let your examination be carefully conducted, and, if need be, repeated. The practised hand will usually be able to distinguish between the permanently solid firm feeling of the fibroid tumour and the distinct fluctuation of a dropsical ovary. But when ovarian tumours are solid, or are made up not of one large cyst, but of a great number of smaller cysts with semi-solid contents, the sense of touch, as practised through the abdominal walls, will not often suffice to enable you to distinguish them from uterine out-growths, and you must then proceed to make a

2. *Vaginal Examination.*—The exploration per vaginam is the principal means we have of ascertaining the existence of fibroid tumours when they are still buried in the pelvis, and even when they have risen above the brim we must still have recourse to this kind of examination in order to ascertain the connection of the abdominal mass with the uterus. When this vaginal exploration is combined with external palpation, we can sometimes discover not only the intimate union of the morbid mass with the uterus, but we can determine from what part of the uterine walls it has its origin. The distinction may thus be made sometimes between fibroid tumours of the uterus and ovarian growths, but in other cases we cannot decide without

3. *The Introduction of the Uterine Sound.*—If we have before us a case of fibroids large enough to occupy a place among the abdominal organs, the uterus is ordinarily itself enlarged, and its cavity pulled out, so that the sound passes three, four, five, or more inches into its interior. When we have been able to exclude the possibility of pregnancy, we have no surer means of reaching a definite conclusion as to the real nature of the case, for such a degree of uterine enlargement is to be found in no other tumour with which it is liable to be confounded. There are cases, however, where the vaginal exploration, alike with the finger or the sound, fails to yield us a satisfactory result—where, namely, such an elevation of the uterus has been produced as to drag the os high out of reach. This elevation occurs where the tumour tends to grow downwards till it is arrested by the fascia at the floor of the pelvis, or where it rests on the pelvic brim, and in growing towards the pelvic cavity pushes up the organ from which it springs. Have we any means of completing our diagnosis in such a state of matters? I answer, Yes; by calling into play the sense of hearing to aid the sense of touch, and resorting to

4. *Auscultation.*—When we apply the stethoscope over an

ovarian tumour, as I have already told you, we hear no sound. On auscultating a fibroid tumour, on the other hand, we rarely fail to discover, at one or other side, a bruit precisely resembling the sound heard on auscultation over the pregnant uterus, with which you are familiar as the so-called placental souffle. It may be very faintly discernible in the sub-peritoneal variety, but in the interstitial and submucous varieties, in which we saw the uterine walls to be greatly hypertrophied, and the veins developed into large sinuses, the bruit may always be discovered on careful examination. In a patient whom I saw yesterday with Dr. Elliott of Carlisle, there was a double fibroid tumour, with a very loud bruit, and in other cases of this disease I have heard a bruit louder and more extended in its course than we ever meet with in the gravid uterus. It is not, let me warn you, always to be heard. At least, I have sometimes had patients under my care in whom I could at one visit easily detect the vascular souffle, whilst at another time it was not to be heard. I have only to say further, in regard to the information gained by auscultation, that its negative are no less valuable than its positive results; for if the presence of a bruit serve to distinguish fibroid tumours from ovarian dropsies, the absence of the sound of the fœtal heart is our principal guide in helping us to distinguish it from the gravid uterus.

LECTURE XLV.

ON FIBROID TUMOURS OF THE UTERUS—THEIR DIFFERENTIAL DIAGNOSIS, PROGNOSIS, AND TREATMENT.

I WAS engaged in my last lecture, as you will remember, in showing you how you would be able to recognise a case of fibroid tumour of the uterus when it meets you in practice. It will help to fix in your memory the symptoms and signs which are distinctive of this form of disease, if, in resuming the subject to-day, I bring before you briefly the various physiological and pathological conditions of the uterus and its appendages with which fibroid tumours are most apt to be confounded; or if, in other words, I describe to you their

DIFFERENTIAL DIAGNOSIS.

1. *From the Gravid Uterus.*—There is sometimes such close resemblance between a uterus enlarged from the presence in its walls of a fibroid mass and the uterus at the later months of pregnancy, that all your powers of observation and all your reasoning faculty will be called into play to enable you to decide correctly as to the nature of the case. There are several points, however, by attending to which you will be able to come to a correct conclusion. *First*, the history of the case gives an important clue to its nature. For where the patient has reason to suspect the existence of pregnancy, she has been watching the progress of growth, and can tell us, in regard to a tumour which is now large enough to reach above the umbilicus, that it has grown perceptibly within the last three months, whilst in a fibroid tumour of such size, unless she have only recently had her attention called to its existence, she will tell us that it has been present for many months, and that its rate of growth is comparatively slow. And you may confirm her observation, or make the observation for yourself in a case where she does not yield satisfactory information, by suspending your immediate decision and calling in the aid of time to add to your data. Put her off for two or three months with a placebo, and on again examining her you will find that in the case of a gravid uterus the tumour has gone on

steadily growing, whilst a fibroid tumour of such dimensions is quite unchanged, or, at least, grows so very slowly that any change that may have taken place is imperceptible.

Where you require to come to an immediate decision, you will notice, *secondly*, the *consistence* of the tumour. The solid sensation of resistance which the fingers perceive over the whole extent of a fibroid tumour is hardly likely to be mistaken for the more elastic fluctuating sensation of the gravid uterus, except at those times when contraction is going on in the uterine walls. And you must bear in mind that such contraction very commonly occurs when a pregnant woman first assumes the recumbent posture for the purpose of submitting to an examination. The uterus then feels hard and firm, but if the examination be prolonged for a little, it becomes more relaxed and yielding, and this very change in its consistence gives you a clue to the real nature of the case, and after the contraction has fully subsided, you will probably be able to press through the walls of the uterus so as to be able to discover and define the different parts of the body and limbs of the fœtus. If the fœtus make the movements which it usually makes under manipulation, the perception of those movements will further help to clear up the case.

Then, *thirdly*, you may call in the aid of auscultation; and although the vascular bruit will not serve to distinguish a gravid uterus from a uterus developed around a large intramural fibroid, yet in the former case there will be heard through the stethoscope the sounds of the fœtal heart, to which there is nothing that could be compared in the case of the latter. The distinction between a uterus in the early weeks of pregnancy, and a uterus which is the seat of a small fibroid tumour, is sometimes a matter of considerable difficulty; but in the former the uterus is more equably enlarged and regular in its outline, is softer and more velvety to the touch, and is attended with a more decidedly violet coloration of the vaginal canal, than in cases where a small fibroid is growing in its walls. For in this latter case, unless the tumour be growing towards the uterine cavity, where it will excite a menorrhagia in complete contrast to the amenorrhœa of pregnancy, it is felt as a nodular projection on some part of the surface, the uterine texture feels firm and dense; and if ever any degree of congestion occurs in the pelvic vessels, causing the vaginal mucous membrane to assume the bluish tint of pregnancy, it is only after the tumours have attained such a size as to impede the circulation by pressure at the pelvic brim.

2. *From Ovarian Tumours.*—There is probably no other tumour, physiological or pathological, which is more likely to be confounded with fibroid tumours of the uterus of large size, than tumours originating in its nearest organ, the ovary; and yet it is of the utmost importance to distinguish carefully between them, because the prognosis and the treatment in the two classes of cases are both widely different. To be able to make this distinction, you must bear in mind the difference between the firm consistence of the ordinary fibroid and the more elastic fluctuating feeling of the ordinary ovarian tumour. Remember, further, that the fibroid masses are usually more irregular in their outline, and present one or more hard projections on the surface; while the ovarian tumours are more equable on the surface, or have their outline interrupted by projections which feel soft and elastic to the touch. On making a stethoscopic examination of the abdomen, you have the further distinction that the enlarged sinuses of the uterine walls give out a bruit in the case of fibroid tumours, which, according to my experience, is not to be heard in the case of dropsies of the ovary.

After your attention has been directed to all these sources of information, however, you may still remain in doubt as to the kind of tumour present, until you have recourse to a combined internal and external examination; when, with the fingers of one hand in the vagina, and the other hand applied to the abdomen, you are able to determine the real relation of the morbid mass to the uterus. Except where the fibroid tumour is sub-peritoneal and pediculated, it is such an integral part of the uterus that when the abdominal mass is moved by the hand applied externally, the finger at the os uteri feels the uterus move consentaneously, and *vice versa.* The ovarian tumour, on the other hand, being attached to the uterus through the medium of the Fallopian tube and broad ligaments, is capable of independent motion; and if the finger alone applied to the cervix do not suffice to determine the relationship between the tumour and the uterus, you can introduce a sound into the uterine cavity, and so ascertain the independence of the uterus and ovarian growth. The sound gives you at the same time important information as to the size of the uterus, which is unaffected in the case of ovarian disease, whereas the growth of fibroid masses in the walls of the uterus causes the cavity to be spun out and elongated, so as to admit of the entrance of the sound for several inches (see Fig. 116). In some cases, however, the uterus has become glued to a somewhat solid ovarian tumour by inflammatory adhesions, and the real nature of the case can only be made out by having recourse to the exploring-needle or trocar and canula.

In order to impress upon you the occasionally great difficulty there is in making a correct diagnosis, allow me to mention the case of a lady whom I saw this morning, and who gave me this history of herself. Two or three years ago she began to notice a swelling rising up from the right side of the pelvis, which made her uneasy chiefly from its steady increase in size. Alarmed and anxious, she had consulted many different physicians and surgeons, and had got most conflicting opinions as to the nature of her case. M. Monod in Paris told her that she had an ovarian tumour. She came over to London and saw a distinguished physician, who diagnosed a

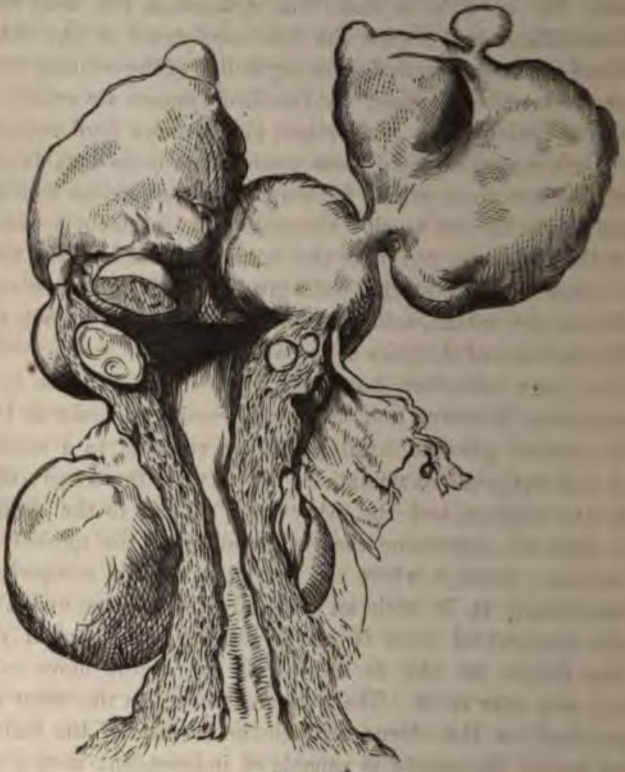


Fig. 116.

Fig. 116. Uterus studded with fibroid tumours in various situations, altering the form of the uterus and increasing the length of its cavity.

fibroid tumour of the uterus. Returning to Paris, she saw several other medical men, who agreed in their opinion with her London doctor. Trousseau examined her, and told her she had both a fibroid and an ovarian tumour. The diagnosis of the existence of an ovarian dropsy was finally established by Jobert, who tapped her and drew off a quantity of ovarian fluid. The cyst is filling again, however, and the tumour is beginning to prove uncomfortable. After making a careful examination of her condition, I think I can explain the error into which so many distinguished diagnosticians fell in judging of this case. For, by means of the sound, I can make out, beyond all doubt, that there is a retroflexion of the uterus, whilst the ovarian tumour can be felt floating up in the abdominal cavity. The sound passed into the uterus can be made to straighten the organ, and when it is kept fixed by means of the sound in its cavity, the independent movement of the ovarian growth can be made out with perfect certainty. Now this case, which shows the difficulty of distinguishing sometimes between uterine fibroids and ovarian dropsies, reminds me further that I must warn you to be ready to distinguish these fibroids

3. *From Flexions of the Uterus.*—A differential diagnosis between fibroid tumours on the anterior or posterior wall of the uterus and the anteflected or retroflected fundus uteri respectively can commonly be made out with tolerable accuracy by means of the combined external and internal examination. But to make the diagnosis sure, you require to pass a sound into the cavity of the uterus, when you will find the nodule projecting distinctly enough from the surface of the uterus, whilst it occupies and is kept fixed by the sound in its normal direction.

4. *From Inflammatory Deposits in the Pelvis.*—In cases of pelvic peritonitis, or pelvic cellulitis of old standing, you may have many of the functional symptoms that occur in cases of fibroid tumours; and on making a vaginal examination the hard inflammatory deposits may impart to the finger somewhat of the sensation of a fibroid mass. But, to begin with, the previous history of the patient will give an important clue to her pathological condition; and then you will note that the diffused irregular indurations resulting from inflammation differ from the nodose well-defined projections of the uterine fibroid. The tumours, moreover, leave the uterus freely movable, except where they have grown to such size as to block up the pelvic cavity; and even then the finger can perceive, through the roof of the vagina, that there is a degree of mobility between

the peritoneal surfaces, which can no longer be felt where inflammation has occurred, matting all the tissues together, and leading to a conglutination of all the serous surfaces.

5. *From Simple Hypertrophy of the Uterus.*—I recently had occasion to describe to you the symptoms and diagnosis of that most frequent form of uterine enlargement which depends on sub-involution of the uterus, and I need only remind you now in a single sentence to beware of confounding such a hypertrophy with that dependent on the presence of a fibroid tumour. The simply hypertrophied uterus when grasped between the two hands—the left applied over the abdomen, above the pubes, the fingers of the right exploring per vaginam—is felt to be regular in its outline and smooth on its surface; differing in this respect from the irregular nodulations which characterise a uterus studded with fibroids. Then the sound will pass easily and at once to a distance of three or more inches into a hypertrophied uterus, the fundus of which does not rise above the symphysis, whilst in the case of fibroids there is often difficulty in its introduction, and where it passes three and a half inches or more, the uterus is usually already large enough to have risen up distinctly into the abdominal cavity; for the elongation of the cavity in the uterus of sub-involution depends on an equable enlargement of all the surrounding walls, and thus differs from the elongation due to the presence of fibroid tumours, which produce a more partial hypertrophy.

6. *From Omental and other Abdominal Tumours.*—You will require, last of all, to be on your guard against mistaking hydatigenous or carcinomatous disease of the omentum, or other large abdominal tumours—as of the liver, kidney, etc.—for fibroid growths in the uterus. You will usually be able to differentiate them by noting the functional disturbances of the generative system which are commonly produced in the case of the uterine tumours, and which are not liable to be affected by tumours in abdominal organs; and on making a physical examination you can perceive that in the case of the fibroid the tumour passes down into the pelvis, where it can be reached by the finger per vaginam, whilst the lower limit of abdominal tumours can be defined above the pelvic brim, and are not to be felt by the exploring finger internally. Let me only add that before making your decisive investigation you should always make sure that the bowels have been completely evacuated, so as to avoid the mistake of imagining that you have to do with such a grave disease as fibroid tumours of the uterus, in a patient who has

only a collection of hardened fæces in the rectum, or in the sigmoid flexure of the colon.

PROGNOSIS.

The prognosis in the case of a patient who was suffering from this disease used at one time to be very gloomy, when its nature was not well understood, and they were imagined to have some relation to carcinomatous disease. But, in reality, fibroid tumours of the uterus are in themselves innocent in character, and have no tendency to kill by the destruction of tissue and the constant exhausting discharges, characteristic of cancer of the uterus; nor have they the same tendency to rapid growth which you see in ovarian tumours, and which makes you sure, in the case of this latter disease, that sooner or later you will require to perform some dangerous operation for the patient's relief or cure. So far from it, fibroid tumours, in the great run of cases, grow very, very slowly; and, if no complication arise, they may remain for years and years without undergoing any marked change, and more particularly in women who are approaching the climacteric period, you can hold out a sanguine hope that when menstruation ceases the tumour will cease to grow, and even begin to decline in size. During their long-continued gradual growth the neighbouring organs have become accustomed and accommodated to their presence, and the patient's system is no way influenced by their pressure, nor will her life be shortened. And if any of the degenerative processes be set up in them which I have described to you—such as calcification, ossification, or fatty degeneration—you may very confidently predict a favourable issue to any symptoms of discomfort that may previously have been excited.

But there are cases where you must be more guarded and less hopeful in your prognosis. For these tumours sometimes go on growing with greater rapidity, producing pressure too rapidly to allow of the accommodation of neighbouring organs, and so interfering with their functions that the life of the patient becomes directly endangered, or her health so much depressed that she more readily succumbs to any intercurrent illness. They may lead to a fatal issue besides; and this remark applies especially to the submucous variety, when they give rise to large and long-continued hemorrhages, with leucorrhœal discharges in the interval. I referred already to their readiness to take on inflammatory action, or at least to the proclivity of a womb which is the seat of them to become inflamed; and inflammation in such an organ is not only very difficult to subdue, and obstinate in its recurrence, but it may prove fatal, either from the intensity of the local mischief, or from its spreading to the general surface of the peritoneum. Such inflammation will very readily be set up in a puerperal patient; and you must remember that the presence of a fibroid tumour may prove a very awkward complication during labour, as well as a source of danger to the pregnant and puerperal woman. If it be situated low down, it may so occlude and obstruct the pelvic canal as to call for some of the severer forms of operative procedure in order to effect delivery; and even when it is seated higher up in the fundus or body, it may retard the progress of labour by its weakening of the muscular walls, and making them to work at a disadvantage. After the child is born, you must be on your guard lest there be excessive hemorrhage from the imperfect irregular contraction which their presence excites; and if the placenta has been attached over the site of the tumour to any extent, the danger of fatal hemorrhage is all the more imminent. There is yet another source of danger in such cases, of which I met with a striking example some years ago. The lady had a sub-peritoneal fibroid tumour of considerable size, which had acquired an adhesion to the inner surface of the abdominal wall behind the umbilicus. Her labour went on easily enough, and terminated most satisfactorily. But pain seemed to be set up in the tumour immediately afterward, and a sudden peritonitis was lit up, of which she died on the tenth day afterwards. On making a post-mortem examination, it became clear that the pain had resulted from the post-parturient contractions in the uterus dragging on the tumour, which was distinctly pediculated, and the neck of it had been thus stretched till it at last gave way, and the tumour was left adherent to the abdominal parietes, whilst the uterus sank down to its normal position in the pelvis.

TREATMENT.

The treatment of fibroid tumours of the uterus varies according to the varying condition of the case, and is sometimes more Medical, at other times more Surgical.

A.—MEDICAL TREATMENT.

In undertaking the medical management of a patient who is the subject of this disease, we set before ourselves the threefold object of endeavouring—*First*, To procure the absorption of the tumour; *Secondly*, to mitigate the symptoms to which it gives rise and *Thirdly*, to maintain or elevate the general standard of the patient's health.

1. *Use of Discutient Remedies.*—Nature sometimes brings about the removal of fibroid tumours, perhaps more frequently than at one time we were inclined to think. Sir Charles Clarke describes the case of a lady who had a large fibroid tumour the size of a child's head, which could be felt through the abdominal walls just above the pubes, and on its surface two smaller projections, one the size of a man's fist, the other twice that size. Two years subsequently these masses could no longer be felt on making palpation over the uterus, and when the patient died some time afterwards the uterus was found hypertrophied, and on the anterior surface of it two small tumours as large as peas, which he took to be the same as those which had previously been felt, now greatly reduced in size. It seems to be an instance where fibroid tumours had become involved and atrophied; and though at one time I doubted whether such atrophy could occur, and suspected that there was some fallacy underlying Sir Charles's observation, I have become convinced that I was wrong, and believe that I have seen a similar absorption in a considerable number of instances. Nor does it seem to me now so difficult to understand how such reduction in their size can occur. When we remember that they are not heterologous growths, but a mere nodose hypertrophy from the middle muscular coat of the uterus, and when we see the changes of growth and involution that occur in the fibres of that middle coat during pregnancy, and after parturition, we may surely hope that the adventitious fibroid masses may become reduced in the same way by a similar process of fatty degeneration. I have become the more convinced that such absorption of these tumours may occur, since the individual fibres are sometimes seen to be filled with fatty granules, and in the first stage of disintegration. If you inquire of men who have seen much obstetric practice, they will often tell you of cases that they have met with, where fleshy tumours of the uterus, which were felt at one time distinct and large, have disappeared subsequently, more especially where impregnation occurred, and the patient was delivered, but occasionally also where conception has never taken place. The morbid growth may not become entirely absorbed, though sometimes it does completely disappear; but at least it will become so far reduced in size, that it ceases to be a

source of discomfort to the patient, and she may even fancy that she has got entirely rid of it. There are two ladies from the north of England whom I have seen from time to time—one from Alnwick during the last five years, the other for three years, both of whom are the subjects of fibroid tumours of the uterus, and both of whom believed, the last time that I saw them, that they were completely cured. In both of these, the tumours, when I first saw them, reached to near the umbilicus, and now they are so far reduced in size as to have passed beyond the patient's ken. In neither of them, however, has the tumour altogether melted away, for it can still be traced in the pelvis, though greatly diminished, on examining per vaginam. In these cases I do not know whether the growth will ever entirely disappear, but already a great deal has been gained, and you will be ready to inquire by what means this diminution in their size has been brought about. Well, I attribute the recovery in these and many other similar, or even more striking cases that I have observed, to the influence of the long-continued and persevering use of bromide of potassium.

You are already acquainted with the discutient powers of iodide of potassium, and the beneficial influence of that drug in many forms of morbid swelling. It has been administered also in cases of fibroid tumour of the uterus, but never, so far as I am aware, with any marked benefit—perhaps for this reason, that it begins to produce its constitutional effect too rapidly, and tells upon and damages the patient's general health before it can have time to act upon the uterine growth. But it is otherwise with the bromide. I was induced to employ it, at the suggestion of Sir Charles Locock, in consequence of the observations on its power as a sedative of the sexual system, which led to its employment in cases of catamenial epilepsy, and from the circumstance that it is one of the ingredients in the mineral waters that are believed to be most efficacious in the cure of uterine fibroids. The mineral springs of Kreuznach, Kissingen, Carlsbad, and other places, have been found to have a remarkable efficacy in arresting the growth and diminishing the size of fibroid tumours, and you may sometimes find it advisable to send your patient to one or other of these health resorts. There they are made both to bathe in, and to drink waters which are impregnated with the salts from some old beds of the sea, and which contain a greater or less proportion of bromide of potassium. But it is comparatively few of your patients who will be able to avail themselves of such a method of treatment, attended with all the trouble and expense involved in leaving their home to reside for six or eight weeks on the Continent; and fortunately it is the less necessary when we can administer to them in their own home the most efficient ingredient of the mineral spring in the bromide of potassium. For, to my mind, the evidence of the efficacy of this drug in retarding the growth, and in many instances reducing the bulk of fibroid tumours of the uterus, is quite overwhelming. Only, mark you, in order to witness the influence of it, you must continue its administration for a lengthened period—not for a few weeks or months merely, but perhaps for years. I had a patient here lately who seven years ago had a fibroid tumour in the uterus the size of a child's head, reaching up into the abdominal cavity. It was not attended with any great degree of menorrhagia, but produced discomfort from its bulk, especially from its pressure on the bladder, and kept the patient continually apprehensive lest it should develop into something mischievous. When I first saw her I put her upon bromide of potassium, and she has continued to use it steadily nearly all the time since then, and with this happy result that her tumour has entirely disappeared, so that on making a careful examination of the uterus, I could no longer find any traces of it. One could not have kept using the iodide of potassium for such a length of time; but the bromide, as I have found in her case, and in many other instances besides, so far from depressing the system, acts as a tonic, and even where it does not tell perceptibly on the fibroid in the way of reducing its dimensions, it very frequently delays its development, and the patient's general health improves to a wonderful degree. I usually prescribe it in five-grain doses three times a day, sometimes in a bitter infusion, or simply dissolved in water. In a few cases it disagrees; and if in any case you find the appetite impaired under its use, and the patient becoming subject to eruptions on the face or elsewhere, you require to make her interrupt its use every six weeks or so for a week or two, and during the interval let her take an acid tonic. In a few instances I have thought that the influence of the drug became more marked after I had introduced a sponge-tent through the canal of the cervix uteri for the purpose of exciting the uterus to a temporary enlargement, corresponding in some small degree to the hypertrophy of pregnancy; for the patient is thus brought into a condition parallel to that of the puerperal woman, and such temporary increase is succeeded by a marked decrease in the size of the morbidly-affected organ.

Some practitioners, who imagined that these growths were due to an inflammatory process, have treated them by abstraction of blood, and other antiphlogistic measures; but such heroic treatment is never called for except where the case has become complicated with an inflammatory attack, which is no necessary part of the history of the disease, but which, while it may prove dangerous or even fatal in certain instances, may in other happier cases initiate changes in the tumours that will issue in their resolution. When, therefore, inflammation has occurred, you will not only seek to subdue it, but by the more diligent use of discutient remedies internally, and the external application of counter-irritants, especially of the tincture of iodine, you will seek to push your advantage and favour the process of resorption. But besides endeavouring thus to bring about the reduction of the tumour, you will be called on, from time to time, to use means for the

2. *Relief of Symptoms.*—You will often require to administer sedatives with the view of relieving the pains which are set up in the uterus—whether the pain be of inflammatory origin, or be due to muscular action in the uterine walls. In other cases the menorrhagia is the prominent symptom; and whilst in many patients you must have recourse to the surgical measures for its arrest, of which I am to tell you presently, in others you are shut up to the use of medicinal agents. Of these the most effectual are gallic acid, given in twelve-grain doses three times a day or oftener, or Ruspini's styptic, which is, I believe, a solution of gallic acid; oxide of silver, in doses of half-a-grain or a grain, three times a day; and above all, ergot of rye. The ergot is administered either in powder or in the form of the tincture or liquor, in frequently-repeated small doses. and is valuable inasmuch as it not only tends to check the hemorrhage by the contractions it excites in the blood-vessels, but it stimulates the uterus, at the same time, to the contractile efforts which are sometimes so beneficial in furthering the elimination of the submucous variety of growth.

3. *Attention to the General Health.*—It is a general law that all these morbid growths progress more slowly when the patient's system is sound and strong; and you must use all hygienic measures to maintain her health at the highest possible point, and prescribe iron and other tonics where the constitution has been lowered and the blood impoverished. It is in this point of view that bromide of potassium has commended itself to my favour; for I have often seen the patient's general health improve under its use, even when it did not seem to influence the growth of the tumour in the uterus.

And no doubt part of the benefit which such patients derive from visits to the German spas is attributable to the happy invigorating influences of the change of scene, and occupation, and diet, which such a visit implies.

B.—SURGICAL TREATMENT.

Whilst you gather from what I have said, that the efforts of the physician are thus comparatively limited in the management of fibroid tumours of the uterus, you will find that they offer a wide and fruitful field for surgical interference. The surgeon may endeavour to act upon them so as to procure their removal, or he may be restricted in his efforts to the use of palliative measures.

a. REMEDIAL MEASURES.

The various operative procedures that have been or may be put in practice with the view of influencing the growth of these tumours, or procuring their elimination, are all imitations in some degree of the natural processes which are seen to take place in them under different circumstances. Thus the observation of cases where fibroid tumours have undergone a calcareous degeneration has led to the idea of making

1. *Use of Galvanism to bring about Calcification.*—That calcification can be brought about in tissues of a low type of vitality has been shown by the experiments of Rayer, who found calcareous deposits occurring in the ears of rabbits on being irritated. And some American surgeons have proposed to apply this observation to the uterine fibroids, and by means of galvano-puncture, or even by thrusting a trocar into the centre of the growth, to send a current through it, with the hope that this irritation might lead to the same kind of calcareous degeneration which is seen in old tumours that have lost their activity. But the degree of vitality of a tumour that is undergoing such degeneration at the hands of nature is widely different from those which are still in a state of active growth; and the interference which was intended to produce only a local irritation and the death of the tumour, would be too likely to have a wider influence, and might lead to the death of the patient.

2. *Gastrotomy and Excision of Tumour.*—The attempt has sometimes been made to rid patients of huge fibroid tumours by cutting down upon them through the abdominal walls, and removing them

bodily. The operation has been done by some distinguished ovariotomists, who have begun the operation under the impression that they had to do with an ovarian tumour; but Dr. Atlee and others have also had recourse to this procedure where there was no mistake as to the real nature of the growth. I have myself operated in one case, and have shown you the preparation of the enormously enlarged uterus with a huge fibroid in its wall. The woman who was the subject of it had been aware of the existence of the tumour for two or three years, and had reached the climacteric period; but it was one of those exceptional cases where the tumour, instead of standing still or beginning to atrophy, seemed to take on a new development, and, as it was growing rapidly larger, destroying the patient's health, and rendering her unfit for her ordinary household duties, the extirpation of the diseased organ was the only measure that afforded any prospect of cure. Our modern ovariotomy experience renders the extirpation of the uterus an operation less difficult of performance than it would have been in former days; but it is a vastly more dangerous operation than ovariotomy, because of the greater extent of stump and the larger number of almost inaccessible blood-vessels that have to be divided. In my own case the patient died, partly of exhaustion, but with commencing peritonitis, on the third day after the operation; and the fatality in the hands of other operators has also been so great, that I would not again think of having recourse to gastrotomy in a case of fibroid tumour of the uterus, unless I were sure that it was entirely subperitoneal, and had become so far pediculated that the neck could be caught, and the bleeding controlled by means of a clamp. Such cases, however, are comparatively rare, and not very easy of diagnosis, so that for the sub-peritoneal and intramural varieties of tumour surgery holds out but faint hopes of cure. But you will ask, Are there no means of reaching the tumour per vaginam, and effecting its removal? and I have to tell you that in some cases of the submucous variety you may attempt its

3. *Enucleation and Removal through the Vagina.*—Let me first tell you, however, that no man would urge a patient to submit to this kind of operation where the tumour was latent, as it were, growing, perhaps, but very slowly, and giving rise to no symptoms of distress. It is only where life is imperilled, for example, by the excessive hemorrhage, that it becomes a question in what way you can interfere, so as to remove the cause of all the mischief. For the hemorrhage may not only reduce the patient to the last stage

of anæmia, but a sudden accession of it may at any time cause her death, as was seen in the history of the case represented in Cruveilhier's plate. Or, again, the frequently recurring paroxysms of pain which attend the contractile efforts excited in the uterus for the expulsion of the mass, tend to break down the patient's health, and may make it desirable to interfere surgically for her relief. A lady, the relative of an Edinburgh doctor, suffered from pains which returned at a regular hour every day; and on dilating the uterus with a sponge-tent, I found a fibroid tumour projecting into the cavity, and exciting thus the uterus to contractions, which the patient, who had had a family, declared to be more painful than the pains of labour. I saw in London, some years ago, with Sir Charles Locock and Dr. Tyler Smith, a patient from whom Dr. Smith had already removed a portion of a fibroid tumour, but who had become subject to such severe exacerbations of pain, that it was a question whether an attempt should not be made to remove the whole. Then, further, we sometimes find nature trying to cure the case in this way, as I have told you; and we ought to interfere to facilitate and expedite the process. For it is not always safe to withhold our hands, and allow it to go on unaided. I have a preparation of a tumour removed from the body of a patient who died under the attempt of nature to expel the growth. The mucous membrane covering it had got ulcerated through, and under the contractile efforts of the uterus the growth was in process of expulsion, when the mass became sloughy and putrescent, and the patient died. Last year I saw a patient die in whom the uterus had thrown off a fibroid mass some years before, under the care of a Dublin physician. The uterus was as large as a uterus at the seventh month of utero-gestation, with loud bruits audible on various parts of its surface. Every month there were renewed attempts, on the part of the muscular walls, to effect the expulsion of the tumour, and she came here hoping that something might be done to hasten its removal, as it was coming down more and more, till it had begun to project at the vulva. In such a case, the tumour does not lie in the cavity of the uterus, but in a cavity within its walls, and surrounded by the muscular layers, so that the removal of the tumour leaves a wound-surface of tremendous extent, and I did not feel justified in attempting to interfere, till perhaps it was already too late to do good. As the pulse had become very weak, and the patient was in the last stage of exhaustion, I made an effort for the removal of the tumour, only to find, however, that it was of too

great size to be dragged through the pelvic brim, and th
portion of the sloughy mass was removed, the patient sa
died. In other cases of smaller dimensions, I have seen l
couraging results. In the first patient in whom I effected t
cleation of a uterine fibroid, the tumour grew from the ba
and projected towards the vagina. To reach the growth
stroyed the intervening uterine tissue with caustic potash
most prominent point. Contractions were set up in the
which lasted three or four days, until this sort of labour pus
tumour so far within reach, that it could be seized with
and removed. For a time she seemed to be fairly recoverin
she was unfortunately allowed to get up too soon, and was
with symptoms of an irritative fever, and died. Other cas
not only recovered from the immediate effects of the operati
have remained in permanent good health. It is, I repeat,
case of the larger-sized tumours, an operation attended w
utmost risk, from the great danger that there is of inflammatio
set up in the large ragged excavation out of which the morbi
has been dragged, and also from the likelihood of injury
peritoneal surface if the tumour have involved much of the th
of the walls. So that, although I have seen one or two s
ful cases of the enucleation of fibroid tumours of considerab
I regard it as an unjustifiable operation where the tumour
already distinctly in process of descent; and I have becom
and more inclined to restrict the operation to cases of tum
small dimensions, when it may certainly be had recourse to w
most hopeful prospects.

To reach them you may require to dilate the canal
cervix; and this dilatation you will effect by the use of s
tents in preference to the division of the cervix by the kn
which Amussat and the other French surgeons who first att
the operation had recourse. In other cases the mass is alr
the vagina. In either case, you seize it with one or mor
of vulsella, and whilst steady traction is kept up on the p
ing part of the tumour, you may require to assist its sep
from its bed by tearing some of its attachments with your
nails, or with a knife or blunter instrument. Where it is n
large, you may twist it out by turning it in the grasp of the
carefully round and round in one direction, as I shall h
describe to you more fully when, in my next lecture, I sp
you of the treatment of fibroid polypi. There is usually li

no hemorrhage; and if the patient survives the shock, and escapes the risk of local inflammation or pyæmia, her recovery and restoration to health are usually very rapid. I might add, that it is also very complete in those cases where the tumour is solitary. But they are very apt to be gregarious, as in one of the patients in the ward from whom seven distinct nodules have been removed at three different periods, some of them almost polypoid, others buried more deeply in the walls of the uterus. I removed two from the uterus of a young lady last year. She returned, quite recently, very anæmic; and, on dilating the canal, I found the tumour which I show you now; and possibly she may have more that may afterwards cause trouble. Three years ago I had a patient from America, from whom I removed two fibroid growths, one as large as a hen's egg. She recovered perfectly at the time, and I hoped she was permanently cured; for the last time I met her she was in the Picture Gallery in London, standing looking at the pictures. I have since heard, however, that she has had some symptoms of hemorrhage, and this may be an indication that some other tumours are beginning to develop.

5. *Removal of Portions of the Tumour.*—Seeing the great danger attendant on the enucleation of the entire mass in the case of large tumours, some surgeons have had recourse to a measure which appeared less formidable. They have interfered with them so far as to remove a portion of the growth, cutting it off if projecting, or gouging it out if it were still imbedded in the wall. This operation, it was expected, would set up such an amount of irritation in the mass as would stir up the uterus to attempt its elimination, or would end in the atrophy and disappearance of the growth. In cases where hemorrhage goes on to a great extent, I can believe that this procedure may have the effect of checking it if no mischief supervened; but it always appears to me that the risks of a fatal inflammatory attack are too pressing, and the prospects of a cure too problematical, to feel justified in having recourse to it in any case that has yet come under my observation.

PALLIATIVE TREATMENT.

The surgical management of patients suffering from uterine fibroids, is not, however, at an end when we do not judge it expedient to have recourse to any operation which should have for its object the radical removal of the growth; for, though we are constrained to withhold our hands from any serious measure, we may and must often use means to relieve the more urgent symptoms.

1. *Relief of Pressure.*—The patient frequently suffers, in cases where you would not dream of interfering heroically, from the pressure which the tumour exerts on the neighbouring organs; and this may take place in three different positions. In the cavity of the pelvis, first of all, when the growth is small, it is yet of sufficient size to add to the weight of the organ from which it springs, and causes, as I have told you, a descent of the uterus which may be very distressing to the patient. If it be situated on the back wall, more especially, it has a tendency to produce a retroversion of the uterus which is very annoying. Now this distress you can often relieve very effectually by making the patient wear a vaginal pessary, such as we find to give relief in other forms of retroverted uterus.

Again, secondly, when the tumour is of larger size—so large as to fill up the entire pelvis or the pelvic brim—when it has caused an increase in the size of the organ corresponding to the gravid uterus at the fourth or fifth month of pregnancy, it ordinarily rises up into the abdominal cavity to find room for its further development. But at this stage in their growth, these tumours are not unfrequently caught at the pelvic inlet, and then they produce a disturbance of the functions of the other pelvic organs, which may be among the most persistent and annoying that the patient ever experiences. From this distress, however, you can relieve her, in cases where the uterus or the fibroid is not bound down by peritonitic adhesion, by pushing the mass upwards into the larger cavity. With two or three fingers in the vagina, applied to the lower part of the tumour, you press steadily upwards and forwards in the axes of the pelvis, and sometimes after slight effort, sometimes after a more prolonged attempt, you will feel the mass escape from the cavity in which it was confined, and float free into the larger space. The patient is usually laid on her left side as in most gynecological operations; but occasionally it may be desirable to place her in a prone position, or on her elbows and knees; and, however it may be accomplished, the relief which she experiences is so immediate and so complete that she is ready to believe you have wrought a miracle of a cure.

But, thirdly, she is not free from the effects of pressure even now; for if there be much freedom of mobility in the mass, it will cause discomfort by knocking about in the various movements of the body, causing pain by its impinging on other parts, or if it be at all inflamed and sensitive, becoming itself the seat of suffering during all these movements. This state of matters you must seek to relieve by making the patient wear an abdominal bandage carefully adapted so as to support the abdominal walls, and exert such a degree of pressure as will keep the enlarged uterus more or less firmly fixed in one position ; and you will often find the good effects of the binder increased by applying to the abdomen a large plaster, which may be made to contain belladonna or opium if the tumour be in any degree sensitive and resentful of pressure. You can thus in some measure relieve the patient of a symptom which is not, it may be, directly detrimental to her health, but which is otherwise a source of constant distress. But your surgical means of palliation are not thereby exhausted, for you may interfere in many cases most opportunely and effectively by employing various measures for the

2. *Arrest of Hemorrhage.*—I have indicated to you the kind of medicinal agents which are most serviceable in moderating the excessive menorrhagia from which such patients often suffer ; but when the bleeding goes on uncontrolled, and seemingly unaffected by any internal remedies, you must have recourse to the vaginal tampon, in order to stem the tide that keeps draining away her strength, and may be threatening even to destroy her life. You may introduce a speculum into the vagina, and through it pass in several pieces of lint, or sponge, or cotton-wadding, so as to pack up the vaginal cavity, and produce some degree of compression on the cervix uteri. Some surgeons prefer to introduce an air-bag in an undilated condition into the vagina, inflating it after its introduction, so as to press upon and expand the vaginal walls. If you have to plug in an emergency, you can always command the use of a soft handkerchief of silk or cotton. But where you have your choice of material, I am sure you will find nothing more satisfactory than the long strips of surgeon's lint, and if you take care to soak it freely in olive oil, you will succeed in introducing it without much annoyance to the patient, even without the use of the speculum.

The plugging of the vagina is, of course, only a temporary expedient, and has no ultimate influence on the progress of the case, and therefore, instead of losing time by the employment of it, it is often advisable to stem the discharge farther up in the genital canal by introducing a tent into the cervix uteri. The sponge-tent puts a more effectual and immediate arrest on the escape of blood, and may often be applied with less difficulty to the practitioner as well as less disturbance to the patient, than the tampon. During its stay, moreover, in the canal of the cervix and the cavity of the uterus, it effects such a degree of compression upon the mucous lining as to bring about a change in it, which renders the patient less liable to the immediate return of the flooding; and where it does not offer much prospect of such a happy result, it opens up the way for the employment of other measures.

For a *third* means of checking the hemorrhage due to the growth of fibroid tumours of the uterus consists of the application of various styptics to the swollen and bleeding mucous membrane. Now such styptic applications may be made in the way of injections into the uterine cavity; but not, according to my experience, without exciting symptoms of danger, unless the uterine orifice have been preliminarily dilated by the use of the tent. And when the canal has been thus dilated, I have preferred to apply my favourite styptic—the saturated solution of perchloride of iron in glycerine—by means of a long camel-hair brush, rather than to make use of any astringent injection. In other cases, I have sought to act upon the congested membrane by means of a stick of lunar caustic freely applied to it through the patent canal, so as to cause the sloughing of its superficial layer.

In many of these cases the hemorrhage arises from the vessels which course over the surface of the projecting tumour, and which have become partially opened in consequence of the ulcerative process occurring in the mucous membrane. If this membrane with its blood-vessels were only sufficiently divided to allow of their retraction, the vessels would close, and the bleeding for the time would cease. It is, I believe, in this way that the application of caustic to the surface sometimes acts beneficially; and you may effect the same end, *fourthly*, by dividing or tearing through the mucous membrane with a bistoury, or with Recamier's curette. I have frequently had recourse to this operation in cases of large fibroids giving rise to excessive hemorrhage—sometimes scraping off a piece of the mucous membrane with the curette, but more frequently dividing it with a tenotomy-knife. You need not fear any dangerous consequences from the incision made thus on the prominent part of the tumour, for the growth itself is possessed of such small vascularity, that even if the cut were made to sink some depth into its substance, it would probably cause no perceptible addition to the amount of hemorrhage that was going on when you felt called on to interfere.

I ought to add, *fifthly*, that some gynecologists have reported good results, in the way of arresting the hemorrhage and checking the growth of fibroid tumours of the uterus, by division of the cervix at one or both sides, as in the operation for dysmenorrhœa. But I am unable to speak from personal experience of the value of this procedure, as I have had reason always to be satisfied with the division of the mucous membrane over the tumour—an operation which not only for the time arrests the menorrhagia, so as to allow the patient to rally and regain her strength, but which also aids the efforts made by nature for the elimination of the mass, and prepares the way for a more hopeful attempt at a later period to effect its radical removal by a subsequent surgical operation.

LECTURE XLVI.

ON POLYPI OF THE UTERUS.

I PROMISED to speak to you to-day about uterine polypi, by which we sometimes understand one of the most common varieties of fibroid tumour of the uterus, namely the submucous fibroid pressing into the cavity of the organ and becoming pediculated. But there are other kinds of polypi besides. Every tumour growing in the uterus, and projecting into its interior, or becoming extruded from the os, with a stalk more or less distinct, is a polypus, and we have them of different characters growing at different parts of the organ.

SIZE AND SHAPE.

They present all possible differences in regard to size; some of them being large as a child's head, others small as a pea—so small and soft that they easily escape the notice of the exploring finger. They are usually of a round or oval form, and regular in their outline, though you will sometimes meet with them more cylindrical and irregular; and the growth is attached to the interior of the uterus by a stalk sometimes long enough to reach from the canal of the cervix, or the cavity of the body of the uterus, so far as to allow of the protrusion of the polyp not only into the vagina but through the vulva; whilst in other cases the growth sits partially imbedded among the muscular fibres of the middle coat of the uterus, and may with equal propriety be regarded as a case of polypus or of submucous fibroid tumour of the uterus, because you will have, as one of the most familiar

PATHOLOGICAL VARIETIES OF POLYPI,

1. *Pediculated Fibroid Tumours.*—The largest specimens of uterine polypi that we meet with belong to this class, for they are sometimes so large that, after they have been loosened from their attachment to the interior of the uterus, the extraction of them through the vulva is only accomplished with great difficulty. When polypi of this sort are cut into, you will notice that within the mucous

membrane which invests them, and which is usually thickened and injected, the section presents the well-known appearance of a divided fibroid (see Fig. 117). The clear glistening surface, the pale fibrous masses twisted together into unequally-shaped balls, and all bound together by a looser and slightly more vascular tissue, tell you at once what the pathological nature of the body is, before you ever submit a

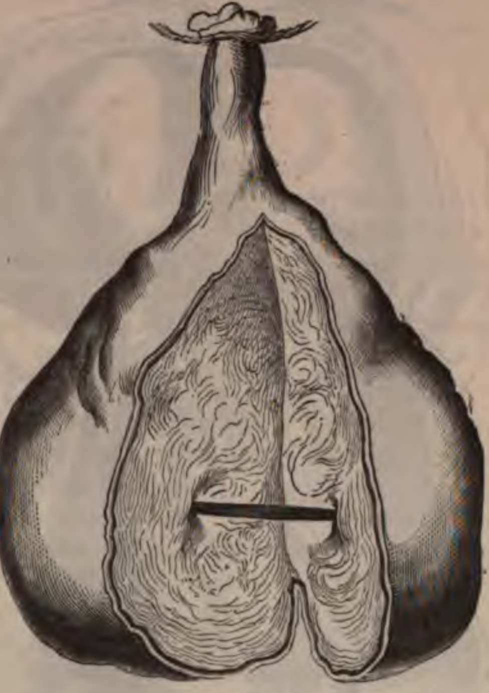


Fig. 117.

fragment to microscopic examination, and find in it the characteristic feebly-developed elements of unstriped muscular fibre. I do not know that the problem has been satisfactorily worked out, how these submucous fibroids become pediculated. I show you a preparation (see Fig. 118) which exhibits one of the elements which is sometimes at work in effecting their pediculation; for you will see that the tumour has been caught in the neck of the cervix uteri, and you can almost see how, under the contractions of the uterus, the growth will be drawn from its seat, and its stalk tend to become

Fig. 117. Fibrous polypus of the uterus, cut into to show its identity in structure with fibroid tumours of the uterus.

elongated. But the process takes place mainly when the tumours are still confined within the uterine cavity, and is seen to take place as distinctly on the peritoneal surface. We only know that the tumour, like every other living structure, grows most readily in the

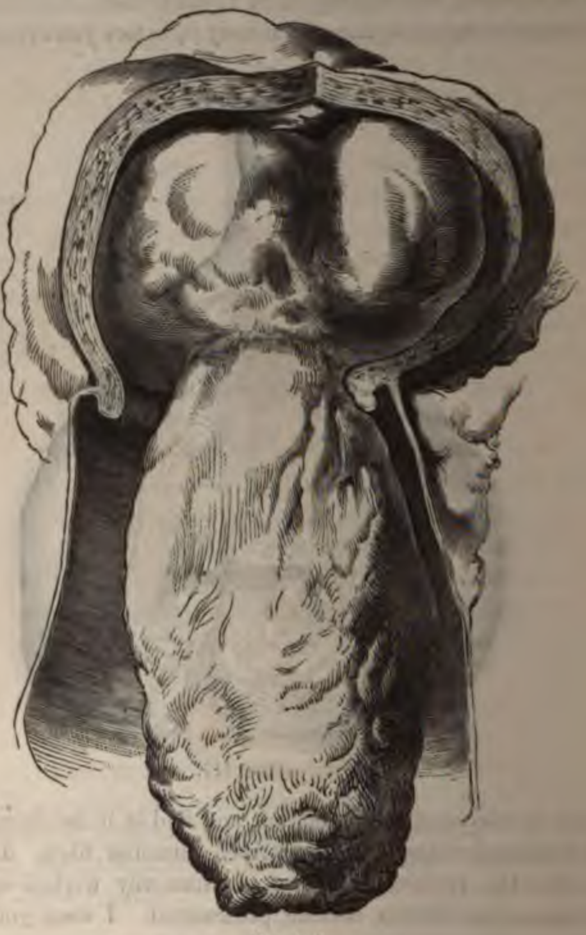


Fig. 118.

direction in which it meets with least resistance. And as the fibroid of the uterus cannot easily increase by forcing its way among the dense tissues of the middle coat, it must grow towards the surface to which it lies the nearest; and it may be that a con-

Fig. 118. Intra-uterine fibroid which has become pediculated, and is in process of expulsion under uterine action.

tinued but imperceptible degree of muscular action goes on in the adjoining walls, which hastens its protrusion on the surface, and favours its pediculation. But, however they may be produced, these fibrous polypi are of very frequent occurrence in practice, and form a group with well-defined pathological characters.

2. *Mucous Polypi.*—Then there are a considerable number in which the polypus is felt at once by the finger to be of a different texture. They are more soft and pulpy, are commonly of small size, rarely larger than a filbert; and, instead of being round, they are more elongated, pyriform or fusiform (see Fig. 119). They have their origin not in the middle wall of the uterus, but in its lining membrane, and the elements of this mucous membrane, of which they may be regarded as local hypertrophies, are reproduced in these adventitious growths. In some instances the surface is smooth and regular, in others there are depressions to be noted which are the orifices of canals which enter for some distance into their substance, and from this circumstance they have sometimes

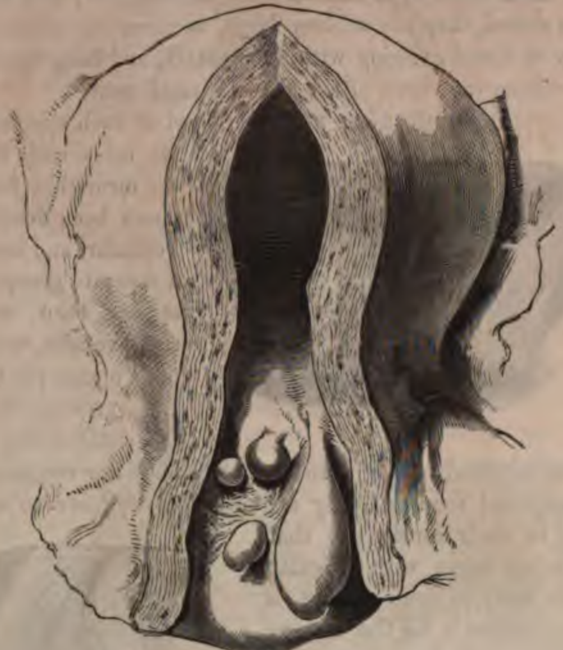


Fig. 119.

Fig. 119. Sketch of a group of mucous polypi growing in the cervix uteri.

been described as canaliculated; whilst the large amount of cellular or areolar tissue which enters into their composition has led to their being designated by others as cellular polypi. They are often, indeed generally, highly vascular, so that they bleed freely; and a vessel of considerable size sometimes passes through the pedicle, which is apt to give rise to troublesome hemorrhage when it is divided. You will meet with them in all stages of growth, but they have usually become fully pediculated before they give rise to so much disturbance as to call for your interference; and although as I have stated, they are seldom large, in some exceptional cases they may be found growing with a long stalk, and hanging into the vagina, or from the vulva, of the size of a small pear.

Far more frequently than mucous polypi of such size, however, we meet with them in the form which has sometimes been described as vesicular, and ranked as a separate group. They appear then as very small vesicles, of the size of an orange-pip (see Fig. 120), growing chiefly in the canal of the cervix, and at the external orifice of the uterus. They are composed of a thin transparent sac containing a glairy fluid, and are so soft and jelly-like in their consistence that the exploring finger with difficulty recognises their presence at the os uteri, or mistakes it for the mucous plug, which is often as palpable as these polypi. They may grow singly, as represented in Fig. 121; but more commonly they are gregarious, and often they are found to co-exist with the larger mucous polypi of the cervix, or with fibroid tumours in the body of the uterus. Sometimes they are sessile; sometimes pediculated.

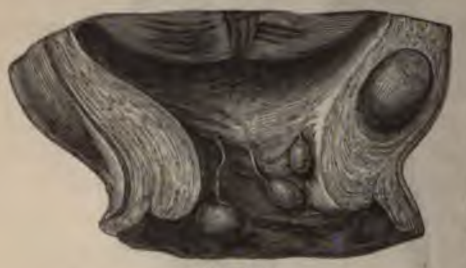


Fig. 120.

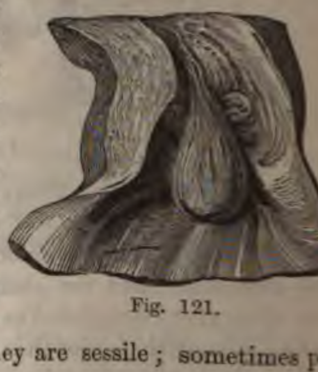


Fig. 121.

Fig. 120. Small pediculated vesicular polypi growing in the cervix of a uterus in which there was co-existent disease in the body and fundus. (*Cruveilhier.*)

Fig. 121. Single vesicular polypus. (*Lee.*)

3. *Erectile Polypi.*—You will sometimes meet with specimens of uterine polypi of small size, and usually having a broad base, which resemble nothing so much as the hemorrhoids of the rectum, with the appearance of which every practitioner is familiar. They might perhaps be classed correctly enough with the mucous variety, seeing that they affect the same habitat and originate in the same lining membrane; but their extreme vascularity, which renders them prone to bleed on the slightest touch, gives them a character quite peculiar.

4. *Placental or Hematic Polypi.*—There is yet another form of growth within the uterus, which gives rise to all the train of symptoms which belong to polypi, and requires the same kind of treatment. It is not, however, a morbid gowth, as the true polypi are, but consists simply of a fragment of placenta which has remained adherent to the interior of the uterus when the rest of the secundines have been detached and expelled after delivery of the child. This accident is most frequently due to the morbid adhesion of a single lobe of the placenta to the uterine wall, and it may easily be overlooked at the time if it do not lead to any immediate amount of flooding, which calls for an exploration of the cavity of the uterus. Such an adherent placental lobe may remain for a long time in the uterus without causing any great degree of hemorrhage, till it has become so altered in its texture that the usual placental appearance is with difficulty recognised. Not unfrequently the retained fragment is but a mere shred, and the bulk of the fleshy-looking body that is found some months subsequently is formed of consolidated clots of blood. The blood, after escaping from the torn surface, has been retained in the cavity of the uterus, and coagulated upon the rough projecting shred of placenta; and the muscular contractions, which were insufficient to detach and expel it, had the effect simply of squeezing out the more fluid portions of the blood, till a hematoma or hematic polypus was formed, so firm in texture as almost to require the use of the microscope to distinguish it from some of the softer specimens of the fibroid polypi.

5. *Malignant Polypi.*—The varieties that I have been speaking of are all simple, non-malignant in their character; and though they are often gregarious, so that, after removal of one, you cannot be sure that the patient may again suffer from the same disease, you can at least be sure that there will be no reproduction of the same growth from the same spot. But my account of polypoid growths

in connection with the uterus would hardly be complete unless I reminded you that cancroid disease sometimes assumes a polypoidal form (see Fig. 122), growing from one of the lips of the cervix, and then commonly described as cauliflower excrescence of the uterus. Of this kind of growth, however, I have already spoken, in a previous lecture (see p. 149); and I wish to confine your attention to the other varieties of true polypi, which show no tendency to reproduction, and are not heterologous in their structure, but merely perverted developments of the normal elements of the uterus.

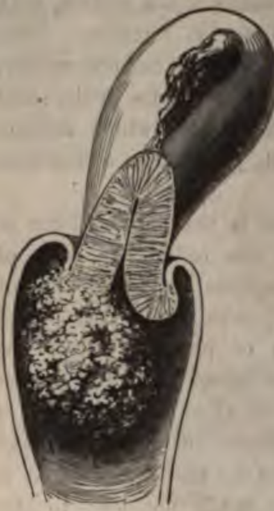


Fig. 122.

ANATOMICAL SEAT.

Before leaving the subject of their pathology, however, I must ask your special attention to the varying seat of attachment of the pedicle, for their symptoms and diagnosis and treatment are hardly more influenced by their pathological nature, than by the relation they hold to the different portions of the uterus in which they may be found.

1. *Intra-Uterine.*—They may grow, first of all, within the cavity of the uterus itself, and may be giving rise to their usual train of symptoms, whilst they are still concealed in the body of the organ, above the os internum, and beyond all reach of the exploring finger (see Fig. 124). Now, it is interesting to know, and important to remember, that whilst small mucous polypi do in some cases grow thus high up in the uterus, such an

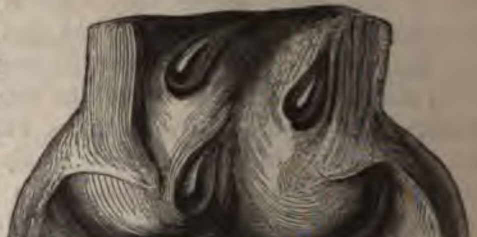


Fig. 123.

Fig. 122. Cancer of the uterus growing in the polypoid form, designated "cauliflower excrescence."

Fig. 123. A group of small vesicular polypi growing in the canal of the cervix uteri. (*Boivin.*)

occurrence is so extremely rare that you may never meet with it in practice. For the polypi which grow from the body and fundus uteri are almost invariably pediculated fibroid tumours. Where portions of placenta have been retained, you will, of course, understand that these also are necessarily intra-uterine in their seat.

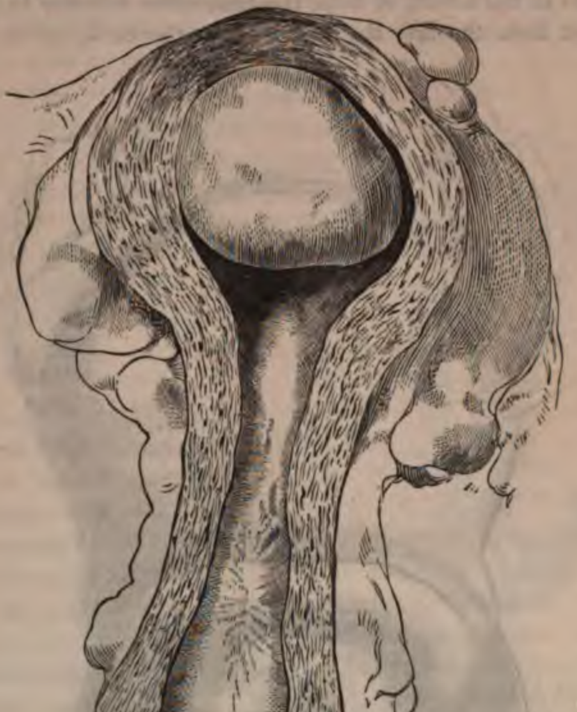


Fig. 124.

2. *Cervical.*—We sometimes arrive at the seat of the mischief before reaching the os internum, and find the polypi at the os externum, or in the canal of the cervix (see Fig. 123). In this case, the growth is usually of the mucous or vesicular variety; and that the fibroid polypus should be here extremely rare, you will readily conclude when you remember how very seldom fibroid tumours develop in the cervical portion of the uterus. Or, if we do meet them in this region, we yet can trace their stalk and seat of origin up to the body or the fundus. For the polypus which was originally intra-

Fig. 124. Sketch of an intra-uterine polypus.

uterine may afterwards become cervical. But it seldom attains this position, or retains it long, without becoming ultimately

3. *Vaginal.*—Occasionally the polypi grow from the vaginal portion of the cervix, or from the immediate entrance to its canal, so that from the first they project into the cavity of the vagina.

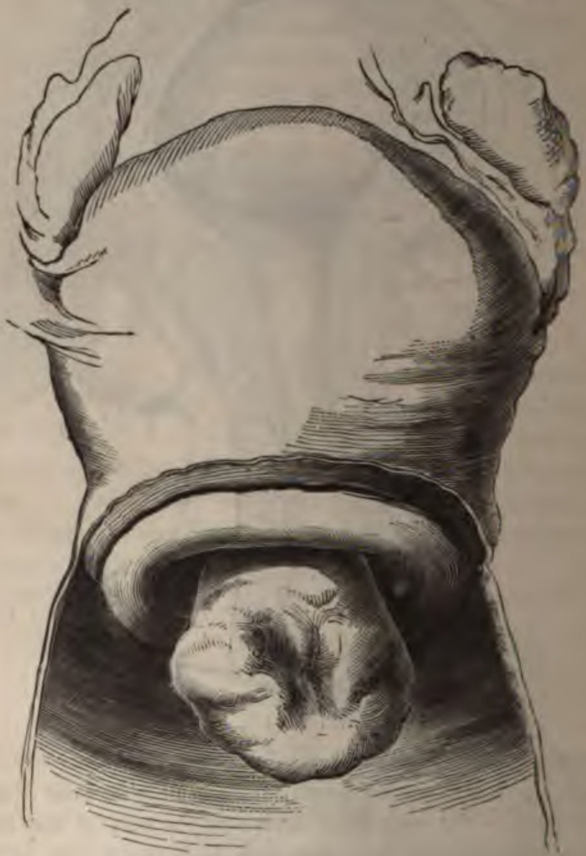


Fig. 125.

But far more frequently they become vaginal only secondarily—the mucous polypi growing downwards from the cervical canal, or the fibroids from the interior of the uterus (see Fig. 125). Their progress in this downward direction can occasionally be traced—uterine action coming on month after month, and pushing the

Fig. 125. Intra-uterine fibroid, which is escaping through the os uteri and becoming vaginal.

tumour farther and farther onwards. Perhaps, if you examine at a menstrual period, when there is a sort of attempt at labour, you will find the os and cervix sufficiently patent to admit the finger, and you feel the polypus projecting from the orifice; and if you examine a week or two later, the canal has closed, and the tumour has retired within the cavity. But, by and by, it gets driven farther down, the stalk is gradually becoming elongated, and it retains a permanent position in the vagina, and may descend as far as the vulva, or even hang out between the labia pudendi (see Fig. 126).

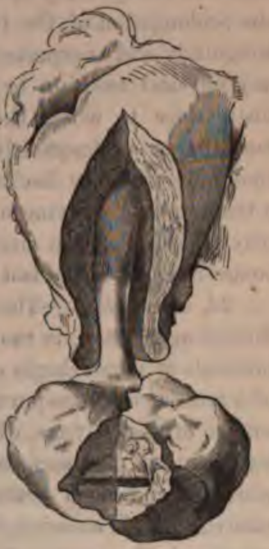


Fig. 126.

Etiology.

We know but little regarding the cause of the formation of these growths, just as we know little or nothing as to the cause of the development of fibroid tumours of the uterus. I have known them to occur in several members of the same family, as if there were some constitutional proclivity to their development. Age has an influence so far, that they appear, in the great majority of cases, during the child-bearing period. But they may grow at any time during the years from fourteen to forty or fifty, when the uterine functions are active; and occasionally they first make their appearance after the catamenial discharge has for some time ceased.

Symptoms.

1. *Constitutional Symptoms.*—Uterine polypi give rise to no special constitutional disturbances which can in the least degree be regarded as peculiar and pathognomonic. All the secondary multiform train of functional symptoms which crop up during the progress of any other uterine disease attended with wasting discharges may be manifested by a patient who is the subject of a polypus in utero.

Fig. 126. Fibroid polypus growing from the interior of the uterus by a long neck, and reaching towards the vulva.

2. *Local Symptoms.*—Nor are the local symptoms much more conclusive in their character, although more defined in their number.

1*st*, *Hemorrhage.*—Frequently the symptom which first attracts the patient's attention, and sends her to consult a doctor, is the increase in the quantity of blood escaping at the menstrual times, and the prolongation of the individual periods. Or it begins to escape irregularly and unexpectedly during the intermenstrual period, under any physical exertion or mental emotion, or without any kind of disturbance to which the access of bleeding can be referred. It may go on so frequently that the patient is oftener "unwell" than otherwise, the discharge continuing for two or three weeks at a time, and only drying up for a short interval. The quantity, too, may be so great that her strength gets drained away, and she becomes reduced to the last degree of anæmia.

2*d*, *Leucorrhœa.*—The deterioration of the patient's health is further aggravated, in most instances, by the continuance during the intervals of menorrhagia or metrorrhagia of a leucorrhœal discharge of a mucous or muco-purulent character, derived not only from the surface of the polypus, which is frequently in a state of ulceration, but from all the surface of the uterine mucous membrane, with which it comes in contact, and in which it keeps up a kind of catarrh, which occasionally passes on to inflammation, and even superficial ulceration. You might, perhaps, be prepared to find such a state of matters in connection with the larger fibroid masses in the interior of the uterus; but what I wish to impress upon you is, that it may arise in connection with the smallest mucous polypi growing in the cervix. For, in many cases where these mucous or vesicular polypi would of themselves not furnish any but the most trifling sanious or mucous discharge, you will find a degree of inflammation occurring in the cervical canal, which shows itself on examination through the speculum in the form of an erosion of the os, or even as a granular inflammation, giving rise to a constant and sometimes copious leucorrhœal discharge. You require to bear this in mind, because such granulations of the cervix cannot be got to heal so long as the polypus is allowed to grow, and, on the other hand, they heal without much further management after the extirpation of the polypus. I ought to add, that where there is any tendency to sloughing of the polyp, or where the discharge is retained from any cause within the genital canals, there is sometimes a fetor attached to it, which is excessively disagreeable to the patient, and reminds you of the fetid discharges of a cancer of the uterus.

3*d*, *Mechanical Irritation.*—Then, further, when these polypi are of any considerable size, the patient suffers from the feeling of weight in the uterus, and the pressure of it on the neighbouring organs. This may occur to a very distressing degree in the case of the larger polypi; but you are to remember that the smaller ones, which from their own bulk would be imperceptible, yet lead to a congestion and hypertrophy of the uterus, which manifests itself in a sensation of bearing down and pressure on rectum or bladder, which is a source of constant discomfort.

4*th*, *Pain* cannot be correctly reckoned among the symptoms of polypus, so far as the growth itself is concerned; for all the varieties of them, even if we were to include cauliflower excrescence in the designation, are insensible, and may be handled freely without exciting any suffering. But the organ in which they grow becomes from time to time the seat of pain—viz. in those cases where uterine contractions are set up for the expulsion of intra-uterine polypus; and these contractions make themselves perceptible to the patient by the pain which attends them, seeing they are in a minor degree of the same nature as the pains of natural labour.

But now I must warn you that here, as in all other forms of uterine disease, you cannot come to a definite conclusion as to the nature of the patient's ailment from the mere consideration of the symptoms. Those which I have described to you may be all present in the most marked degree; but after all they only guide you to the knowledge that the uterus is the seat of all the mischief. The patient, who has become reduced and anæmic through the profuse menorrhagia attendant on an intra-uterine polypus, may present an appearance so like that which you ordinarily recognise as peculiar to the cancerous cachexy, that the practitioner would be foolhardy who dared to pronounce on the nature of the case before he had made a proper vaginal examination. Many a patient has been declared to be the subject of malignant disease of the uterus, and the doctor who pronounced her doom has been brought into discredit, because the woman has been afterwards found to be suffering from a polypus of the uterus, the removal of which has restored her to perfect health. It is not the usual history of such cases that the health gets so far broken down that the patients sink and die. But this does happen sometimes; and as no man dare go into a witness-box and swear that a woman was pregnant, without having examined her physically, so as to have apprehended the positive signs of pregnancy; so none can decide as to whether a woman with a certain train of symptoms—such as menorrhagia, leucorrhœa, and pelvic distress—owes all her discomfort to a polypus or a cancer. None dare predict whether she be labouring under a malady that must go on hopelessly to a fatal issue, or whether she be the subject of a simpler, more remediable kind of malady, without instituting a complete and thorough local examination.

Physical Diagnosis.

Our means of physical examination vary, according as we have to do with a polypus when it lies in the vagina, or is still within the cavity of the uterus or cervix. Let me begin, therefore, by telling you how you are to make a diagnosis

A. Of Vaginal Polypi.

1. *Digital Exploration.*—You will naturally have recourse to a vaginal examination with the finger, when the polypus, if it be of any size and consistency, will be at once detected. If it be not too large, the finger will pass round it, and feel the stalk escaping through the neck of the uterus. Where it is of such large size as not readily to allow of the neck being felt with one or two fingers alone, the whole hand may be passed into the vagina, in order to make out its relations; and as such a procedure may be attended with pain to the patient, you will require sometimes to bring her under the influence of chloroform, in order to make a satisfactory examination. In these cases the diagnosis is not difficult; the rounded, firm body is so easily felt, and the narrow stalk by which it is connected with the interior of the uterus reveals its nature.

2. *Use of the Speculum.*—There are some cases, however, where the fingers do not suffice to detect with certainty the nature of the malady. The vesicular, and even the canaliculated polypi, are sometimes so small and soft, as to be all but imperceptible; and it is only on having recourse to the use of the speculum that you make the discovery. Introduce a bivalve speculum, like Cusco's, or the duckbill speculum of Dr. Marion Sims, so as to bring fully into view the orifice of the uterus, and you will see hanging from the os, or simply protruding through it, a small

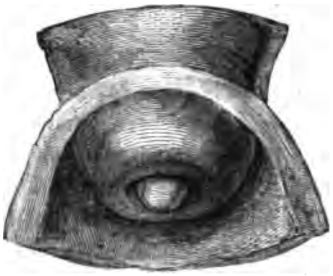


Fig. 127.

Fig. 127. Pisiform cystic polypus projecting from the os uteri. (Boivin.)

red body like a currant or a cherry, of the presence of which the finger had taken no notice (see Fig. 127). If there be any attendant erosion of the cervix uteri, you will be able, at the same time, to notice it, and, before withdrawing the speculum which has been introduced for the purpose of diagnosis, you may proceed to remove the polypus; for this is one of those forms of disease of the uterus in which the speculum yields invaluable service.

3. *Use of the Sound.*—There is still another class of cases where neither the finger nor the speculum suffice to arrive at a satisfactory diagnosis. The finger is aware of the firm, rounded tumour, which it can trace up to the cervix uteri and within the circle of the os; and on combining external palpation with the internal examination, you may sometimes get a suspicion, from the difficulty of feeling the fundus uteri, that you have to do, not with a polypus, but with an inverted uterus. For it occasionally happens that, during the third stage of labour, or soon afterwards, the fundus uteri becomes inverted and protruded into the cavity of the uterus; and in some cases more suddenly, in others more gradually, under the uterine contractions, the fundus descends more and more in this inverted condition, till it projects through the os uteri, and it may go on so far, that the entire body and fundus are found thus hanging into the vagina, grasped by the canal of the cervix. If you meet with such a case immediately after delivery, when the abdominal walls are all relaxed and soft, you will usually have little difficulty in recognising and rectifying it. But where the accident has been overlooked at the time, the process of absorption goes on as usual in the uterus, till it gradually becomes restored to somewhat of its normal size, but retaining all the time its inverted form. The patient presents a train of symptoms precisely similar in character to those of a woman who is the subject of a uterine polypus: the menorrhagia, leucorrhœa, and local discomfort, are all identical; and if she first come to consult you many months, or even some years, subsequently to the occurrence of the inversion, you may have some difficulty in tracing its perfect history. The speculum will give you no satisfactory information, and external and internal examination combined will still leave you very uncertain as to the nature of the case; and Gooch shows how puzzling is the diagnosis under such circumstances, telling how he applied the ligature to the inverted portion of a uterus, regarding which he was in doubt whether it was a polypus or an inverted uterus until after its removal. But the diagnosis is rendered at once simple and sure by

the use of the sound, which, in the case of polypus uteri, will pass it along the neck the usual two and a half inches, or even more; whilst, in the case of the inverted uterus, the point of the sound is arrested around the entire circumference at the line of reflexion, about an inch, in most cases, within the lips of the cervix. The sound is of service, moreover, in the investigation of a case of polypus, in enabling us to determine the seat of attachment of the pedicle, and to ascertain the degree of uterine enlargement, and thus approximatively to estimate the size of the growth.

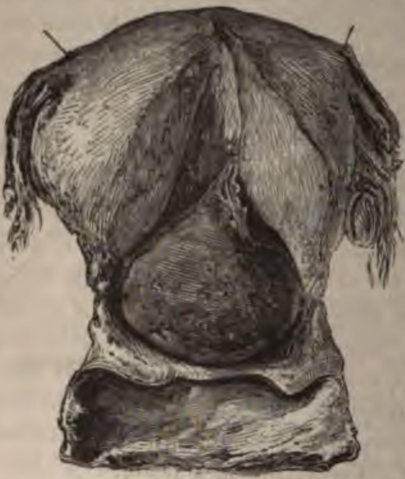


Fig. 128.

4. *Use of Tents.*—But you will ask me, How about the intra-uterine polypi? Are there any means of discovering them when they are still concealed within the cavity of the uterus? Well, we can in some cases ascertain their existence by means of the sound. The sound recognises the projection on the uterine wall, and can sometimes tell you, by its mobility or otherwise, that it is a polypus with which you have to do. But you do not feel quite certain in all cases, from this kind of exploration, of the nature of the case, and more especially you cannot tell in the case of an intra-uterine tumour whether it be polypoid and removable, or still submucous and imbedded in the walls. Many years ago, I saw, with my friend Dr. Alexander Wood, a patient who died of menorrhagia, and in whom after death we found a polypus which was in process of being eliminated by the uterus, as you see in this preparation (see Fig. 128); and it was here so manifest that the patient's life would have been saved if only we could have got into the interior of the uterus, so as to recognise and remove the cause of all the mischief, that I began to think more earnestly whether it might not be possible to do so in any similar case. Why could we not in that case diagnose with certainty what indeed we suspected? Simply

Fig. 128. Polypus which proved fatal by continued hemorrhage while still included in the uterine cavity.

because the os and canal of the cervix were too narrow to permit the passage of the finger. But the cervix is dilatable, and does dilate, as we see in parturition, in abortion, and in some cases even of polypus, under the efforts of nature to expel the contents of the uterus. Now, surgeons have for ages been in the habit of using tents to keep open the lips of a wound, or for expanding the orifice of sinuses; and so I was led to make use of pieces of sponge made into the form of tents, and introduced into the cervix uteri for the purpose of dilating its canal. If you take a piece of sponge that has been dipped in hot water, and, folding it together on a piece of wire as an axis, wind round it a piece of whip-cord as a boy winds the string round his spinning-top, you can compress the sponge into the form of a long pointed cone. Put it thus firmly compressed into a stove till it be thoroughly dry, and on removing the cord you have a sponge-tent of a convenient shape easily to pass into the cervix uteri (see Fig. 129). Some practitioners get the rough ridges left between the spiral furrows of the cord rubbed down, and filed away, so as to leave the surface perfectly smooth. I have always found it better to cover the tent with some lard and wax to facilitate its introduction. The cerate soon melts off, and the ridged surface of the tent serves to keep it in position, until it has time to expand and dilate the canal. For no sooner is it lodged within the cavity of the uterus, than it begins to swell up by the absorption of fluid from the surrounding tissues; and as it swells it distends the cervix more and more. If the os be completely closed, you may require to use a tent no thicker at its thickest part than a goose-quill; and when you withdraw it, after five or six hours, the canal will be sufficiently dilated to admit a second of the thickness of the finger. By using thus a series of tents increasing in size, you can dilate the canal so widely as to admit, if it be desirable, two or more fingers into the interior of the uterus. You can usually pass in the tent easily enough with the unaided fingers of the right hand; but if in any case you find it difficult thus to introduce it, you may

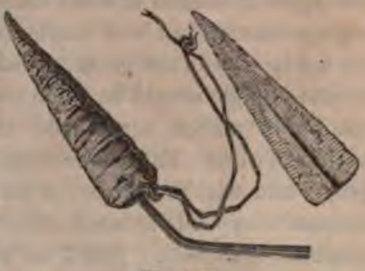


Fig. 129.

Fig. 129. Sponge-tents. The figure to the left represents the tent with the point of a stilet fitted into it. The figure to the right is a section of the prepared sponge.

succeed by passing the point of a stilet, such as I show you (see Fig. 130), into the hole left in its axis by the withdrawal of the wire, and in this way carrying the tent, with one hand grasping the stilet, whilst the fingers of the other hand guide it up to the orifice of the uterus. To permit of the removal of the tent after it has expanded, it requires to have a piece of tape tied to its base.

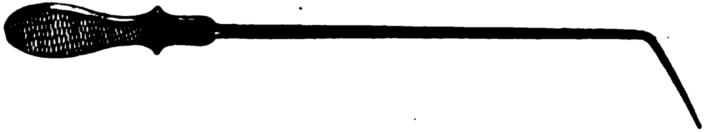


Fig. 130.

I ought to add that instead of using simple warm water or a solution of gum arabic, as we used to do when we began to employ sponge-tents, the sponge, which has to be compressed, may be advantageously soaked in some disinfecting solution, because when no such precaution has been employed, it is very likely to become fetid during its stay in the genital canals. It has recently been proposed that sea-tangle should be made use of instead of sponge in the formation of uterine tents; and the tangle-tent is serviceable in a variety of cases. But for the detection and treatment of intra-uterine polypi and fibroid tumours of the uterus, I prefer the sponge-tent, because it expands so much more readily, and so dilates the cavity much more rapidly. And I am most anxious to impress upon you the importance of effecting a rapid dilatation in all such cases. I have told you that that is a marked proclivity towards inflammatory mischief in a uterus which has become the seat of such growths, and it readily resents any prolonged interference and irritation, such as is apt to attend the effort to dilate it with tangle-tents. For this reason I would advise you not only to use sponge-tents, but to hasten their distension by the occasional injection of a tablespoonful of warm water into the vagina. Seeing the danger that occasionally attends the protracted irritation of the uterine tent, some surgeons have recourse to still more rapid methods of dilatation; and where they have good reason to believe that a polypus or fibroid tumour is present in the uterus, they split open the cervix on both sides with a hysterotome or a pair of scissors, so as to gain immediate access to the uterine cavity.

You must please to remember, however, that when the canal of the cervix has been dilated in any way, it is not enough for you in

Fig. 130. Stilet used in the introduction of sponge-tents into the cervix uteri.

making your examination to pass the finger or fingers of the right hand per vaginam towards the interior of the uterus. A polypus of any size would in this way be almost sure to be discovered; but you cannot make out its relations, and a small polypus might escape detection altogether, unless you apply the left hand over the abdominal wall above the pubes, so as to press the uterus down into the pelvis, and bring the fundus within reach of the exploring finger. I have said that the dilatation of the uterus is not unattended with risk, and you must never subject a patient to the risks of the sponge-tent, without availing yourself and her of the advantage to be gained by a full and complete combined external and internal examination.

PROGNOSIS.

When you have satisfied yourself that a patient is the subject of a true polypus of the uterus, in whatever situation, of whatever variety, you know that you have to deal with a simple non-malignant growth, which in most cases is capable of being removed without much difficulty, and, except in the case of the larger tumours, without any great degree of danger. If left to themselves they may go on growing, causing great discomfort to the patient, and draining away her life and strength through the frequent hemorrhages and long-continued leucorrhœal discharges. We see nature making an effort at their cure by the gradual narrowing and laceration of their pedicle; but, as I have shown you, the patient may succumb ere the separation is complete, and therefore you require to expedite the process and procure a speedy relief by some appropriate means of treatment. What our best means of treatment are, I shall try to show you in my next lecture.

LECTURE XLVII.

ON THE TREATMENT OF POLYPI—AND ON LEUCORRHŒA.

GENTLEMEN—From what I have told you of the nature and course of Uterine Polypi, you will readily understand that it were the merest quackery to pretend to be able to cure a patient whom you knew to be the subject of them by any kind of medication. The medical management of such a case confines itself necessarily to the relief of symptoms; and were I to enlarge on that subject now, I should merely repeat much of what I said to you in speaking of the medical management of fibroid tumours. Here, as there, you have to use means to arrest hemorrhage, to relieve pain, and to raise the general standard of health; and all these indications are to be fulfilled by the same means in both instances.

But the great indication to be fulfilled in all cases of uterine polypus is the removal of the morbid growth; and the question before you is—How can I most rapidly and easily effect its extirpation? For, when you have clearly made up your mind as to the necessity for surgical interference, you must set about the task with the resolute determination to rid the patient as quickly and completely as possible of her troublesome and dangerous enemy. As the nettle tenderly handled will but sting you, but when firmly grasped is harmless, so timid trifling with uterine polypi will often bring your patient and you to grief, whilst a bold and skilful operation will as surely leave you the satisfaction of saving the patient's life. Now there are several different kinds of operative procedure which have been, and may be, employed for the removal of uterine polypi. It may clear the way for the discussion of the different plans for extirpating the fibrous polypi, if I point out to you how we sometimes get rid of the mucous or vesicular polypi of the cervix by

1. *Compression with the Sponge-tent.*—You must have understood from what I have already told you, that in a very large proportion of cases of polypus uteri—in all those cases, in fact, in which the polypus has not come fairly within our reach down into the vaginal

cavity—a certain diagnosis of the case can only be made out after dilatation of the cervix uteri. If access to the root of the mischief be needed for satisfactory diagnosis, it is all the more necessary for surgical treatment; and what I wish you to understand at present is, that in many cases where you are uncertain whether you have to do with an intra-uterine fibroid, or a cervical mucous polypus, you can, by the introduction of a sponge-tent, not only open up the way for an unmistakable recognition of the true nature of the mischief, but, at the same time, in the case of the soft cervical polypus, you crush and kill the growth by means of the expanding tent, and so rid the patient at once of her disease. You will find, perhaps, a series of small mucous growths entangled in the roughnesses of the distended sponge, after its removal; the finger finds the cervical canal free from any excrescences, and the uterine cavity empty; and the patient, who was previously suffering from constant leucorrhœa and frequent discharges of blood, dries up thereafter, and soon regains her lost health and strength. But whilst such simple treatment may suffice for the cure of these small soft bodies, the dilatation of the sponge-tent only opens up the way for the treatment of the graver forms of polypus, and we require to consider by what means we can best compass their eradication.

2. *Strangulation by the Ligature.*—Ligatures used to be had recourse to here and elsewhere as the standard operation, with the view of strangulating and killing the polypus, as we do in the case of hemorrhoids in the rectum. The ligature was applied with the instrument known as Gooch's Canula, and in the manner described by him in his classical work on diseases of women. The loop of wire or whip-cord, or whatever else was used as a ligature, having been applied round the pedicle, the ends were secured at the extremities of the double canula, which projected from the vulva so as to allow of the gradual daily tightening of the noose. For the pedicle of a polypus is not like the base of a soft hemorrhoid, which can be sufficiently compressed at the one tying of the ligature to ensure its strangulation. It may be firm and thick, and the compressing agent only could eat its way through it by slow degrees, sinking into the tissue and causing its ulceration slowly as the noose was tightened every four-and-twenty hours; till, after a period more or less prolonged, the neck was finally cut through, and the strangulated, and sometimes putrefying mass dropped off and was removed. Now this was at the best but a piece of rude surgery, such as no practitioner would dream of employing in the case of a correspond-

ing growth on any part of the surface of the body; and besides that it was by no means easy of performance, it was an operation that was very far from being devoid of danger, the mortality attendant on it being sometimes as great as two in every three of the patients operated on. The prolonged exposure of the patient to the risks of septic absorption from the sloughy decomposing body, has always been a drawback sufficient in my mind to make me ready to adopt any other plan of treatment that would avoid such danger, and the profession generally are now agreed that any more expeditious method is *pro tanto* safer.

3. *Excision.*—Such a method, at once more expeditious and more easy of performance, we have in the division of the neck by a cutting instrument. Perhaps it was the great liability of patients affected with polypi to suffer from hemorrhage, that made surgeons in former days dread to approach them with a knife or scissors; but we now know that the hemorrhage comes, to a large extent, not from the polypus, but from the rest of the swollen, spongy mucous membrane of the enlarged uterus; and when the pedicle of a fibroid polyp is cut across, the bleeding that ensues is very trifling. You may make use of different instruments for effecting this purpose. Some surgeons continue to use a pair of *scissors* for the purpose, curved, blunt at the point, and very strong, according to the plan adopted by Dupuytren, who first had recourse to excision of polypi. I have here a pair of scissors such as I describe, made according to the form employed by Dr. Dyce of Aberdeen, who has cut out a great many polypi by means of them. Many years ago I got another kind of instrument made, with the view of cutting through the stalk of an intra-uterine polypus, and named it a *polyptome* (see Fig. 131). It is a blunt hook, with a sharp cutting blade fixed in its concavity, something like Dr. Ramsbotham's hook for the decapitation of the fœtus, but on a smaller scale. After the uterus has been dilated, you can usually pass the hook of the polyptome without much difficulty round the neck of the tumour. The body of the polypus being then dragged downwards with a pair of forceps by an assistant, or, more frequently, pushed upwards simply by the fingers of the operator's left hand, so as to put the pedicle on the stretch, it is readily divided by making a cutting movement backwards and forwards with the instrument. By this means I have excised many a polypus, and the great difficulty usually lies in the removal of the loose body from the interior of the uterus after the division of its neck. To effect

its removal you require a pair of forceps or vulsella, which differ from those commonly in use for other purposes by having three prongs at each point, not too long, and strong enough to hold without tearing through the tissues. You must have them sometimes curved, but in most cases the straight vulsellum is preferable; and one point that should be observed in their construction is, that the hinge should be placed much nearer the handle than in ordinary toothed forceps. I have, moreover, found it convenient to have them made with a loose joint, so that the two blades can be introduced separately into the cavity of the uterus; and after they have been applied to the several sides of the tumour, they can be locked like the two blades of your midwifery forceps. Instead of commencing the division of the neck at its farthest point, and using the polyptome, some surgeons prefer to attack it at its nearest point with a *bistoury*, taking care to have it blunt up to the point, or guarded at the edges, so that they may run no risk of cutting any part of the uterus, or any structure other than the neck of the polypus. The guillotine, or *tonsillotome*, which is, in my experience, so far to be preferred to the knife and forceps for the removal of enlarged tonsils in young people, has sometimes been employed for the excision of polypi. It serves well enough where the growth is easily accessible, but is too complicated to be of use in the intra-uterine variety. However effected, excision of a uterine polypus is one of the most satisfactory operations in surgery. There may be a little bleeding at the moment: should it threaten to be extreme in any case, you can always control it with perchloride of iron in glycerine, or with powdered persulphate of iron. But it is in most instances very, very slight; not so much blood, perhaps, is lost during the half-hour after the operation, as the patient had lost during any half-hour of her preceding menstrual period, and the protracted frequent hemorrhages cease from that very day.

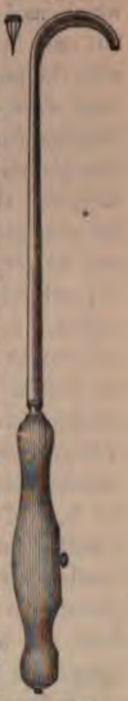


Fig. 131.

4. *Bloodless Amputation by Ecraseur or Galvano-cauter.*—I have just said that in general you may have recourse to the excision of uterine polypi by means of sharp cutting instruments, without appre-

Fig. 131. The polyptome. The small figure to the left represents a section of the cutting part of the hook.

hending any danger from hemorrhage subsequently to the operation. But I had in view, in thus speaking, the so frequent fibroid variety, which, as I stated to you, are not in their whole substance vascular, but only in their mucous covering. The case is somewhat different with the purely mucous or canaliculated variety, in regard to which I must warn you against the danger of supposing that, because it is hanging from the cervix by a narrow pedicle, you may cut or snip that pedicle across without the slightest risk. It looks temptingly easy, and the operation can be very quickly done. But you may lay your account in such a case with a degree of hemorrhage that may be very alarming, and that will require the prompt application of perchloride or persulphate of iron, or even firm plugging of the vagina. It is better to divide such a pedicle with the chain of the écraseur, or with the galvano-caustic wire, so as to crush or cauterise the vessels that so freely bleed in it when they are severed with a cutting instrument. The écraseur is of use also in some of the cases of intra-uterine growths that lie on the border-land between the submucous fibroids and the perfectly pediculated polypi. In such a case the base of the polypus may be too broad to be easily divided with a cutting instrument; or there is such an extent of vascular mucous membrane requiring to be divided, that the cutting operation might give rise to an awkward amount of hemorrhage. Such a tumour I show you here, removed the other day from a lady whom I saw along with Dr. Menzies. It is of more than the size of a goose's egg, and was still partially imbedded in the uterine walls, to which it was attached by a flattened surface on one of its sides. The patient was reduced to the last degree of anæmia by the great losses of blood to which it had given rise, and looked as if she would soon have sunk under a heavy gush; so, instead of trying to cut the mucous membrane round all the tumour with a polyptome or otherwise, I encircled it with the chain of the écraseur, and thus effected its removal almost without the loss of any blood at all. In this case I used the chain-écraseur of Chassaignac, because the tumour lay along the back wall of the uterus, and admitted of its easy application. But in other cases I have found it better to use an écraseur with a flexible wire or wire-rope, which can be passed more easily around the polypus, and which, when drawn tight with a screw, cuts its way readily through the pedicle. Dr. Aveling has invented an instrument which works somewhat on the principle of a lithotrite. The hooked portion, resembling the hook of the polyptome, having encircled the neck, a strong thick blade is forced down into its concavity by a screw acting at the handle, so as partly to cut and partly to crush through the neck on its way. It is admirably adapted for the purpose, and will greatly facilitate the safe and speedy removal of many polypi.

5. *Torsion.*—In speaking to you of fibroids of the uterus, I told you how easily they could often be shelled out of their capsule, and I would now add that if you seize an intra-uterine polypus with a pair of forceps such as I have described to you, you can, by twisting it round and round steadily in one direction, and at the same time dragging it downwards, frequently enough tear it away from its attachment to the uterus without any risk. A polypus such as I show you (see Fig. 124) can be removed in this way, if, after dilatation of the cervix, the growth be firmly grasped with a strong vulsellum, and twisted out of its seat in the uterine walls. Torsion may be applied also with success to some of the mucous and vesicular polypi of the cervix. Grasp the neck, or, if the polyp be very small, grasp the entire body, in the bite of a pair of long dressing-forceps, the handles of which are fixed with a catch, and a few turns of the wrist will suffice to strangle and separate it.

6. *Scraping.*—In the slighter cases it is not even necessary to use the forceps. They can sometimes be scraped off with the finger-nail, or with a curette or gouge, as proposed by Sir Charles Locock. Where there is a group of small warty excrescences in the canal of the cervix, which have not been crushed together during its expansion by the sponge-tent, the curette is the instrument that will serve you in best stead for their removal.

7. *Cauterisation.*—The actual cautery was at one time employed largely in the treatment of uterine disease by French surgeons, and small polypi of the cervix were frequently got rid of by this means. I have used the red-hot galvano-caustic wire in this way a few times with success; but it does not seem to me to offer any advantage over the simpler ablations with the torsion forceps or curette; and if, after twisting or scraping off the polypus, you still feel some doubt that all has not been completely removed, or that there is a fresh crop ready to spring up in its place, you may apply some caustic to its root. A stick of nitrate of silver will usually suffice; but in some cases, more particularly where the cervix has become thickened and indurated, you will prefer to use potassa fusa. You can apply it with all safety through a tubular speculum, if only you be careful to neutralise the excess of alkali by the copious use of acetic acid in the form of wood vinegar. It has the good effect of

not only destroying the existing polypi, but of producing at the same time a sloughing of the mucous membrane which deprives it of its tendency to reproduce others.

ON LEUCORRHŒA.

The discharges due to the irritation of the uterine mucous membrane from the presence of the polypus usually dry up soon after the removal of the morbid growth; but as they sometimes continue to be troublesome for a few weeks afterwards, and as you must have observed that I have frequently had occasion to call your attention to the occurrence of Leucorrhœa as a symptom which is present in various morbid conditions of the uterus, perhaps you will allow me to take this opportunity of making a few observations on the conditions under which it arises, and the means by which it should be counteracted.

The quantity of mucus found on the surface of the lining membrane of the genital canals in ordinary circumstances is extremely small, sufficing simply to keep the passages moist and lubricated, without affording any excess to make its escape externally. But in a great variety of the morbid affections of the uterus, this mucous secretion becomes increased in quantity and altered in its quality, and it is thus one of the most frequent of the functional symptoms of many different diseases. It sometimes is present, however, where the pathological condition which first gave rise to it has in a great degree subsided, and all that the patient now complains of is the constant discharge of "the whites," as it is popularly designated. So constantly is this the case, that it becomes a matter of great practical importance for you to be prepared to understand the conditions under which it may arise, and may call for your special care and treatment.

PATHOLOGICAL NATURE AND ANATOMICAL SEAT.

A pale white discharge sometimes takes the place, in girls of a delicate constitution, of the ordinary sanguineous discharge of healthy menstruation. The blood may be defective in quality or deficient in quantity to supply the usual flow; or there may be such insensibility of the nervous system as will prevent the generative system from responding to the degree of stimulation which usually accompanies the monthly ovulation. But there is some degree of excitement present—a certain amount of the menstrual molimen, and it manifests itself by the occurrence of a pale discharge, which may be only very faintly tinged with blood. The term Leucorrhœa, or Fluor Albus, is used, however, to designate the white discharge which occurs in the inter-menstrual period in the case of women who may have their catamenial flow of blood going on quite regularly, or even excessively. It may be present only immediately before or after a monthly period, or in the more marked cases, where it takes rank as a disease requiring special treatment, it may continue throughout the weeks when menstruation is in abeyance. It varies greatly in amount, being so small in some instances as merely suffices to produce a slight stain on the patient's linen; whilst, in other instances, it may be so profuse at times as to compel her to wear such a cloth as she wears when menstruating. Most frequently it has the appearance of a milky fluid; sometimes it is more thick and creamy. In either case it is found, when examined under the microscope, to contain vast numbers of epithelial cells in process of degeneration, many of them crowded with molecules and granules, and the walls of others already breaking down, adding their contents to the multitudinous particles which float in the liquid, and give it its milky aspect.

Again, the discharge may have a more transparent albuminous aspect, particularly when we can see it escaping from the os uteri through the speculum, where we often find it having an appearance closely resembling the white of an egg, and presenting under the microscope a large proportion of mucous fluid and fewer epithelial cells. In this case it feels more tough and gelatinous, and is more likely to stiffen the patient's linen like starch.

In yet other cases, the discharge has a yellowish or greenish tint, like the contents of an abscess, and then it is found to be rich not only in broken-down epithelial cells, but in pus-corpuscles.

When we come to examine a patient with the view of ascertaining the source of these leucorrhœal discharges, we find that they may proceed from different parts of the genital canals.

1. *From the Vulva.*—On separating the labia majora pudendi, we may see that the matter is secreted on the mucous membrane lining their inner surface, and is due to some of the forms of vulvitis which I have already had occasion to describe to you (see p. 290).

2. *From the Vagina.*—Much more frequently the fluid is seen coming through the rima vulvæ; and on examining the vaginal

product of some part of the interior of the uteri fluid escaping from the os uteri, and it may then morbid change going on—1st, in the canal of th but not so commonly, in the cavity of the uterus; cording to some gynecologists, it may have its orig membrane of the Fallopian tubes.

In whatever part of the genital passages it ma may originate from different causes. Inflammation membrane in any part of the generative tract will l an increase in the quantity of the mucus whic there and lubricates the passages; and after the acı inflammatory attack has passed, the excess of secı and keeps up the leucorrhœa. Where inflammato occurred, leading to the various forms of ulceration stand that the sore surface will yield a discharge; seen in the slighter abrasions and erosions which s found in and around the orifice of the uterus. Or vagina in cases of leucorrhœa, you will sometimes fi it is due to some kind of eruption spreading over t or seated in the vaginal portion of the cervix ut class of patients whom one frequently meets with are too often set down as mere hypochondriacs, bec be no distinctly discoverable disease of any of the organs. But their disease is very real to them, and a state of continued ill-health, which unfits them for ca usual avocations, and is attended with great depre general languor, and impairment of the nervous and On inquiring into the history of such a case, you will that she is subject to dyspepsia, and that the bowe as in the mouth and fauces, or within the anus by means of a speculum, you may see vesicular or papular eruptions of greater or less extent, which are probably indicative of the occurrence of similar eruptions going on throughout the intestinal tract. Now such patients are extremely liable to suffer from leucorrhœa; and when we examine them with a speculum in a good light, similar eruptions to those occurring in the intestinal mucous membrane are found in the mucous membrane of the generative canal. In other cases, however, there is no distinct degree of inflammation or special form of ulceration; but the whole mucous membrane is swollen and vascular, and throws out an excessive amount of secretion, because it is in a state of chronic catarrh. It may even be found to be more relaxed and pale, and the leucorrhœa is due to a want of tone in a constitution which is debilitated throughout, as you may see in patients who are the subjects of phthisis or other wasting diseases, or in whom the system is worn down in consequence of mal-nutrition or undue waste from various excesses.

For whilst you have leucorrhœa depending on the various local morbid conditions to which I have referred, you may also have this constitutional variety where the discharge from the genital mucous membrane may have been set up originally in connection with some local mischief, but remains after the local disease is remedied; or where, without the occurrence of any noticeable local change, leucorrhœa sets in, and is kept up in women whose blood is poor, and in whom all the tissues are soft and relaxed.

SYMPTOMS AND DIAGNOSIS.

1. *General Constitutional Symptoms.*—However it may have originated, when the leucorrhœa is allowed to go on unchecked, it ultimately exerts a deleterious influence upon the system. The constant drain is in itself a source of weakness, and it sooner or later becomes attended with a degree of dyspepsia which interferes with the nutrition of the patient, who becomes debilitated, pale, languid, and disinclined for any exertion.

2. *Local Symptoms.*—There may be no pain present, except where the discharge is symptomatic of some inflammatory process; but there is a feeling of weight and uneasiness in the pelvis, especially when it is caused by catarrh in the body or cervix uteri. In such cases there is apt to be dysuria; and where the discharge becomes

irritating, there may be a sense of excoriation of the vulva, degree of pruritus.

The diagnosis of the different varieties of leucorrhœa made out to some extent by the examination of the char the discharge. When it arises in the vagina, it is usual and milky, is acid in reaction, and contains quantities of t epithelial cells with which the vaginal mucous meml invested. A discharge that has its origin within the can cervix, or in the body of the uterus, though it may be mo the vagina, is usually more clear and glairy, of alkaline and presents under the microscope some of the ciliated cy cells characteristic of the intra-uterine mucous membran full diagnosis cannot be made, however, without having re the use of the speculum, through which we can investi condition of the vaginal walls, and note their degree of co or tumidity, or detect the presence of eruptive patches. may find it due to some kind of eruption, abrasion, ulcer hypertrophic inflammation of the vaginal portion of the cervi or we may see that the lips of the os uteri are swollen and and the pouting mucous membrane of the cervical canal i injected, and perhaps has the surface abraded, indicat existence of catarrh within the cavity.

DIFFERENTIAL DIAGNOSIS.

You will require carefully to distinguish a simple leu discharge from the discharge arising from some varieties of disease, lest you waste your time in employing the measur for the cure of leucorrhœa in cases of more formidable cl where they will be of no avail. You must be on your g instance, against mistaking for the ordinary "whites" the d attendant on carcinoma uteri. The peculiar persistent fœto carcinomatous discharge, its acridity, or its occasional disco from admixture with blood, will usually keep you from falli error.

The discharge attendant on uterine polypi, as it is the same nature as simple leucorrhœal discharge, and depen some extent, like it, on irritation of the uterine mucous me may more readily be misunderstood. But the discharge as with polypi is likely to be mixed with pus, and sometim blood-globules; and if you will only remember never to be as to the real nature of any uterine disorder without instituting a local examination, you will be able in most cases to make a correct differential diagnosis.

The discharge of a pelvic abscess will be so distinctly purulent, that you would only be likely to confound it with a leucorrhœa arising from a cervical ulcer, from which the speculum would enable you to distinguish it.

Discharges due to a specific infection may be undistinguishable from simple leucorrhœa, except from the ascertaining of their origin, and perhaps from finding the urinary canal simultaneously affected.

And lastly, a careful inquiry into the history of the case, conjoined with a physical examination, will prevent you from regarding as leucorrhœal the hydrorrhœa gravidarum, and the lochial and other discharges incidental to the pregnant and puerperal state.

TREATMENT.

Your management of the case will vary according as you have to do with it in an acute or chronic form.

A. When Acute.—The acute variety of leucorrhœa is dependent on catarrh, congestion, or actual inflammation, setting in in the genital passages, and is to be met by the use of the milder antiphlogistics. Warm baths, hot fomentations, and sedative injections, combined with opiates and diaphoretics internally, while the patient is kept completely at rest, will generally serve to arrest its course. To attempt to restrain it by astringents at this stage would be extremely dangerous, and would probably only have the effect of causing the inflammatory action to extend to the uterine appendages. On the other hand, you must beware of continuing to use depressing measures, and to make relaxing applications for too great a length of time. For where a discharge of this kind is set agoing in the generative organs, it is only too apt to become persistent; and ere long you must be prepared to have recourse to the treatment appropriate to it

B. When Chronic.—The patient may first come to consult you after the discharge has been long established, or the acute may be passing over into the chronic form. In either case you will find that you will make little progress towards cure unless you use means

1. *To restore and promote the General Health.*—Whilst there can be no doubt that the discharge has a tendency in itself to bring

about a state of general ill-health, it can as little be questioned that the local mischief is kept up by the continued debility; and you find the first step towards recovery taking place when, under the administration of various tonics, the digestive and assimilative powers of the patient are improved, and her blood becomes invigorated. For this purpose you may prescribe quinine, bibeerine, or some bitter tincture or infusion; but you will never succeed far without having recourse to the use of some of the mineral tonics, and, above all, to the use of iron. Parrish's phosphatic syrup suits excellently well, and the aluminate of iron is believed by many to be especially useful in such cases.

2. *Use of Specifics.*—Besides administering the usual tonics, practitioners have frequently sought to hasten the cure of leucorrhœa by the use of medicines which are known to have a specific effect in the checking of discharges from mucous canals. Cubebs, copaiba, benzoin, capsicum, and ergot, have all been employed with this view, and their advantages have all been advocated by various writers. I have tried them, without obtaining any very decided or constant result. But I have frequently found that when I had to do with leucorrhœa in women who were the subjects of intestinal pellicular eruptions, the leucorrhœa first began to subside when means were used which have a marked influence on eruptions in other parts of the body. The use of tar in the form of tar-capsules, administered to an amount sufficient to produce a rash on some part of the cutaneous surface, often does good in this way; and their administration may be advantageously succeeded by the prolonged use of small doses of arsenic. The arsenic may be given in combination with the iron, or other tonic which you have chosen to prescribe; and if its use be patiently and steadily persevered in, you will often find that vaginal and cervical eruptions disappear, and discharges dry up, where the previous employment of local measures alone had failed to yield a satisfactory result.

3. *Treat locally the Local Affection.*—In the greater proportion of cases, however, you fail to check the leucorrhœa until you have recourse to various local applications. In the milder cases, you may order the patient to make use of some astringent injection, making her be careful to use a vaginal tube which will carry the fluid up to the cervix uteri, so that the whole canal may be washed by it. A decoction of oak-bark, or other solution of tannin, is one of the commonest and best of vaginal injections in leucorrhœa. Or you may prescribe alum, or better still the aluminate of iron; and it is

usually desirable to have the canal washed out with tepid water before administering the medicated douche. The use of a cold douche itself is often all that is needed, and, especially in the case of young unmarried women, the employment of a cold sitz-bath every morning is preferable to the vaginal injection, and is frequently successful in checking the morbid discharge. Patients who have difficulty in making due use of injections should be asked to apply the astringent in the form of pessaries made with gelatine. But in other cases, where you have the leucorrhœa arising from abrasions and ulcerations of the cervix uteri, you require to have recourse to the use of the various means appropriate for their cure, and of these I propose to speak to you in my next lecture.

LECTURE XLVIII.

ON CHRONIC METRITIS.

GENTLEMEN—I purpose to direct your attention to-day changes which occur in the uterus when it becomes the inflammation in its chronic forms; and in doing so I shall it first as it affects the body and fundus of the uterus, an wards as it affects the cervix uteri.

A. OF THE FUNDUS AND BODY OF THE UTERUS.

When inflammation is set up in the upper segment of the it seldom, probably never, affects one of the layers of the walls singly; but it may be found originating and produc most marked effects in one of these layers at a time in prefer the others, and we thus get three varieties of chronic n according as it is seated in the peritoneal covering of the in its lining mucous membrane, or in the thickness of its wa

1. *Perimetritis.*—I have already spoken of acute inflamm the serous covering of the uterus when speaking of pelvic peri When the acute stage has long passed, we find the results c adhesions which have formed between the uterus and the bouring pelvic organs, glueing it to the rectum, bladder, or the pelvis, and giving it a tendency to become displaced, or ing an obstacle to the restoration of the organ when dislocat

2. *Endometritis.*—Inflammation of the lining membrane i ever, an affection of more frequent occurrence; at least, it before us much more frequently as a separate disease requir special treatment. It is usually associated with inflammatio ring in the canal of the cervix, for it is comparatively rare endometritis going on for any length of time without the membrane lining the cervix participating in the mischief, whi extend to the vaginal canal as well. Or, conversely, inflam beginning at the lower extremity of the genital tract, is li spread upwards and invade the higher cavities. In the bo fundus of the uterus it leads to various changes. The

membrane becomes swollen, and spongy, and vascular, and its tubules furnish a copious supply of mucus, which escapes in the form of a clear, glairy, starchy-looking fluid during the whole inter-menstrual period. The catamenia are apt to be profuse, in consequence of the free escape of blood from the engorged membrane. The casts which are thrown off in the membranous variety of dysmenorrhœa were at one time regarded as the direct results of inflammation in the mucous membrane, leading to plastic exudations resembling those of croup and diphtheria in the respiratory passages; and though we now more correctly refer these to exfoliations, more or less deep, of a layer of the uterine mucous membrane, yet chronic endometritis is apt to give rise to dysmenorrhœa for two distinct reasons. For, first, the tissues, which are the seat of a chronic and almost painless inflammatory process, get into a temporary state of acute and more painful inflammation under the stimulus of ovulation; and, secondly, the congested membrane may pour out blood so profusely, that it does not readily all escape through the cervix, and the expulsion of the clots that form within the cavity is attended with painful spasmodic contractions of the walls of the uterus. In cases where endometritis has existed for a great length of time, the discharge may become purulent, in consequence of actual ulceration occurring on some part of the affected surface; and from the broken surface blood is apt to escape from time to time in the form of metrorrhagia, or perhaps only in sufficient quantity slightly to tinge the muco-purulent discharge.

3. *Parenchymatous Metritis.*—When inflammation attacks the uterus either in its serous covering or its mucous lining, it usually also invades to some extent the substance of its walls. Endometritis, more especially, is likely to be attended with inflammatory changes in the thickness of the uterine parietes. But in other cases the morbid process originates in the parenchyma of the uterus itself, and holds that as its principal seat. When occurring there it leads to thickening and induration of the walls of the uterus, which are likely to be aggravated at each menstrual period, and give rise to a painful and persistent form of uterine hypertrophy.

SYMPTOMS.

1. *General Constitutional Symptoms.*—Patients who are the subjects of chronic metritis, whether the inflammation affect the outer, middle, or internal coat, may present all the various constitutional disturbances with which you are already familiar as the concomitants

of uterine disease. You may even have an extensive grou minor functional disorders characteristic of pregnancy, marked in a patient, in whom the only local change consis inflammatory action in the walls of the uterus. I will not enumerate these, but would ask you to note more particula

2. *Functional Disturbances of the Uterus.*—The function uterus may be interfered with in various respects. *First* of struation may become disordered, and usually in the directi increase in the amount of the catamenial discharge. This likely to be observed in the cases where the mucous memb the middle coat of the uterus are the chief seats of the than in those cases where the serous covering is affected. perimetritic variety we may be even more liable to have a to amenorrhœa; but in the other varieties you can readil stand how the increased vascularity of the walls of the ute especially of its thickened and enlarged mucous membrane, a proclivity to menorrhagic discharges. Where the endom very marked, and the membrane has become very soft and spo patient may even become liable to metrorrhagia in the between the menstrual periods.

Then, *secondly*, the increased activity in the uterine tubu to an increased secretion of mucus, and the disease never ex in the endometritic form without indicating its presence b sistent leucorrhœa. This symptom may be absent where th mation affects principally the perimetrium, or the middle wa uterus; but where you have chronic catarrh of the uterus, always present a discharge of clear, albumen-like fluid, and i flammation be of long standing, or of a severe type, the d may become more or less purely purulent.

The reproductive function of the uterus is likely, in place, to be impaired. The patient will probably not con readily, and where conception does occur, she is liable to be to an abortion in the early months of pregnancy. Or, agai escape this danger it may be found that, owing to the expa the cavity of the hypertrophied uterus, the ovum has n caught in the folds of the mucous membrane as high up as the fundus or body of the uterus, but has slipped down, to attachment only at the lower segment, so that a placental p tion has resulted. The inflammatory changes in the muscu may, moreover, have the effect of hindering the perfect ment of the muscular fibres, so that the power of the uter tractions will be lessened during parturition ; or such softening may occur in the tissues that they give way, and the labour becomes complicated with rupture of the uterus.

Let me only add, *fourthly*, that as in inflammations of other organs, so in the uterus we find that the patient suffers from pain in the affected part. After the hot throbbing pain of acute inflammation has long passed, a degree of tenderness remains, which may not be very distressing when the organ is kept at rest, but of which the patient is reminded by every movement of the part, and which becomes aggravated at the monthly periods, when she often suffers from a severe degree of dysmenorrhœa.

3. *Disturbance of Neighbouring Organs.*—Wherever the metritis has led to some degree of uterine hypertrophy, the enlarged organ will press upon the bladder and rectum, and the due performance of their functions will be, in a corresponding degree, impaired. But, as in all other diseases of the generative organs, you can only form a presumptive diagnosis by judging from the functional symptoms. To recognise metritis with anything like certainty, you must not only take into account the history of the case and the functional symptoms, you must also have recourse to

PHYSICAL DIAGNOSIS.

By external palpation you may ascertain that there is tenderness on pressure in the uterine region. By internal examination you may recognise this same tenderness, and find at the same time that the uterus has a feeling of unusual weight. But it is only on careful combined internal and external examination that you are able to estimate the exact size of the uterus, and its fixity or freedom of motion. The speculum will be of service in the way of determining the source of the leucorrhœal discharge in contrast to vaginal discharges, and it may show the vascular engorgement of the organ ; but whilst, in the diagnosis of the various inflammations of the cervix uteri, the speculum affords invaluable aid in the case of inflammations in the body and fundus, it is mainly useful for facilitating the treatment. The uterine sound must be used with the utmost caution in all cases of metritis, for the rash and forcible introduction of it would be likely to set up active mischief, but if employed with due caution it sometimes, in such cases, gives important information as to the size of the uterine cavity, and the condition of the internal surface.

TREATMENT.

A. Medical.—In combating inflammation in the uter require to have recourse to the various measures whi described to you as being useful in inflammation of th appendages (*see* Lecture VI.) In chronic metritis, the st active antiphlogistics are required has passed, but mercurials struent salts, administered through the stomach, or applie are still of use. Sedatives must be prescribed for the rel pain; and various vegetable or mineral tonics must be to invigorate the general health. The warm mineral s Ems, Kreuznach, and various other Spas, are in great repu of their power of reducing the engorgement of the uter results from chronic metritis. But there are many cases kind of medical treatment, local or general, has any marked reducing the inflammation, and you must have recourse means of treatment which are more strictly

B. Surgical.—It is in cases of endometritis, more e that you require to make applications to the interior of th No surgeon who had the management of a case of chr flammation of any part of the skin, or any part of the m fauces, leading to eruptions or ulcerations or catarrh, wo tent himself with merely seeking to act on the system, w knew that by the application of some caustic, he could st the affected part more speedily to a healthy action; and not unfrequently compelled to treat obstinate and otherwis able inflammations in the interior of the uterus, by the sa means that we would employ in combating inflammations els

1. *Introduction of Solids into the Cavity of the Uterus.*—W apply caustic to the interior of the uterus by means of the porte-caustique (see page 636), or by means of a sound, th of which has been dipped in fused lunar caustic. Where the canal is patulous enough, I frequently introduce a small soli of nitrate of silver into the interior of the uterus by an ment resembling a catheter, which has the opening at its poi through which the caustic can be pushed by means of a sti there be a knob on the end of the stilet to make it fit and tube of the catheter, powdered astringents, such as the pers of iron, may be used in the menorrhagic cases as a substi the lunar caustic.

2. *Astringent Injections.*—Or astringents and alteratives

applied in the form of solutions injected into the uterus through a catheter. But the proceeding is attended with pain, and frequently with great risk, especially where the os is not sufficiently patulous to allow of the free reflux of the liquid. I therefore prefer to have recourse to a preliminary dilatation by means of the

3. *Sponge-Tent.*—When the canal of the cervix has been opened through the dilatation of the sponge, you can more safely inject the perchloride of iron, or whatever other astringent you choose to employ. You may safely use the tent in cases where the disease has become fairly chronic, and where your other measures fail to set up the process of absorption in the engorged and indurated tissues. Where the inflammation has affected mainly the lining membrane, leading to its permanent thickening, it may sometimes be desirable to scrape off portions of it with Recamier's curette, but usually a solid piece of nitrate of silver introduced, and left in the cavity of the uterus, brings about a healthier action in the morbidly affected membrane; and such a piece of caustic can be safely and easily introduced when the canal has been opened up by the sponge-tent.

B. OF THE CERVIX UTERI.

More frequently than in the body and fundus of the uterus, inflammation occurs in the cervix; and probably there is no uterine ailment that you will be called on more frequently to treat when you come to practice than inflammation of this region in one or other of its varied forms. For you will find that there are several distinct

TYPES OF CERVICITIS.

1. *Catarrhal.*—In the simplest variety the mucous membrane lining the canal of the cervix is swollen and congested, leading often to a slight degree of eversion of the lips of the os, and pouring out a pretty constant and copious supply of clear mucus, so that it comes to be one of the commonest sources of leucorrhœa.

2. *Eruptive.*—Not infrequently, when you examine the uterus by means of the speculum, you see that it has become the seat of some kind of eruption. The catarrhal variety of inflammation affects mainly the membrane lining the canal, and only rarely passes over the margin of the os to invade the external aspect of the vaginal portion. The eruptions that are found on the cervix, on the other hand, are found clustering round the orifice, very closely it may be, but very seldom passing into its interior. You

may find almost any kind of eruption appearing here. seen the cervix the seat of an erythematous rash. Vesic tions are not very uncommon in the form of patches o aphthous spots, or of herpes. Herpetic eruptions ar frequent occurrence at the pudenda, where the skin an membrane are continuous as at the lips ; and here, ag there is a transition from one kind of mucous me another—from the scaly epithelium of the vagina an portion to the cylindrical epithelium of the cervical ca kind of eruption assumes a habitat, and appears as uterinus. Pustular eruptions occasionally occur in th spots of acne, solitary or in groups ; sometimes co-exis some other inflammatory changes ; at other times being t the only detectable disease. Let me add, lastly, tha eruptions, such as lichen or prurigo, are sometimes pres as an independent affection, or complicating some chro in the genital canals. Where these varieties of eruption on the vaginal aspect of the cervix, they are very freque found also on the walls of the vagina, just as catarrh of is frequently associated with the same affection in the cav body and fundus of the uterus.

3. *Ulcerative.*—In a large proportion of cases the morb in the cervix is seen to be due to what is often enough ulcer of the womb. Many of these so-called "ulcers," ho nothing more than slight abrasions or erosions aroun externum. The epithelial surface has become abraded to or less extent, leaving a red vascular surface, lubricated mucus. In other cases the raw surface is studded ov multitude of granulations ; and this granular inflammatio the commonest types of cervicitis you will ever meet w lips of the uterine orifice are seen to be more or less sw and roughened on the surface, with a strawberry-like a the opening is unusually patulous. The granulations limited to a small circle around the os ; but though the I have just referred to are frequently limited to such a area, the granulations commonly spread themselves over surface of the vaginal portion, and can sometimes be se upwards into the interior of the cervical canal. These and granulations are apparently, in some cases, the s herpetic or other eruptions ; but their origin is not alway trace, for they have often existed long before the pa

applied for advice, and such a great variety of morbific influences seem to result in the establishment of these low types of inflammation, that they are, as I have said, among the most constant affections of the uterus. In rarer instances, we find the sore in the form of rodent, venereal, or other varieties of true ulcers.

4. *Hypertrophic.*—Corresponding to the parenchymatous variety of inflammation in the body and fundus of the uterus, you will sometimes meet with cases of inflammation in the cervix which leads not so much to changes on its surface, or in its lining membrane, as in the muscular and connective tissue of its walls. You will find this in two distinct classes. In the first, the chronic inflammatory changes lead to a simple thickening and enlargement of the walls of the cervical portion, mainly, in all probability, from a hyperplasy in its connective-tissue elements. In such a case, the organ presents an increase in size, but retains its normal consistence, or may feel somewhat softer and more lax than the healthy cervix. In the second class, the cervix is not only enlarged, but at the same time the tissues become condensed and indurated, and have a feeling hard and inelastic as that of a scirrhous growth; and as there are apt to be some irregularities on the surface—some indentations, more particularly at the margins of the os—this hypertrophic form of inflammation with induration is very apt to be mistaken for a hard cancer. But in this case the induration is confined to the vaginal portion of the uterus, which projects, freely movable, into the fornix vaginæ.

There are no more frequent affections of the female organs than these various inflammations in the cervix uteri, for they are matters of every-day occurrence; and I must now ask your attention to the symptoms which they produce, and the means by which they are to be recognised.

SYMPTOMS.

A. As with other uterine diseases, so here there is a train of *constitutional* disturbances set up, which may lead the patient to consult a practitioner, but which are not of themselves sufficient to indicate the nature of her ailment.

B. Nor are the *local* functional disturbances of sufficient value to do more than direct the medical attendant to the uterus as the seat of the mischief.

1. *Painful or Profuse Menstruation.*—Among the local functional disorders we note first the disturbance of menstruation, which usually

goes in the direction of menorrhagia or dysmenorrhœa. catamenial flow may be natural, or may be even diminis quantity, and may pass painlessly away; but in the greater of cases the discharge is rather free, sometimes profuse, a frequently its escape is attended with pain.

2. *Leucorrhœal Discharges* are present to a greater or less in all these cases. Where there is an actual excoriation or tion, the discharge is purulent or muco-purulent, otherwi clearer and albuminoid in its aspect. More frequently th other symptom, it is the leucorrhœa which compels the pat seek your aid.

3. *Local and Reflex Pains* in other cases prove the sc greatest distress. The patient experiences an uneasiness w aggravated by all exertion, and which amounts sometimes t suffering in the uterus itself; or she suffers from a dysuri you vainly try to relieve by all the sedatives in the pharma but which disappears at once when you address your treatn the cure of a granulating sore on the cervix; or the pain experienced in some of the other favourite seats of neuralgia, owns as its originating cause a uterine disease, as in the s under the mamma, or, most frequently of all, over the sacrum

DIAGNOSIS.

I might add that there is often enough impairment of productive powers; but none of the symptoms, nor all of t combination, enable you to decide as to the nature of the n To make a correct diagnosis you have recourse to a physical nation, and here, more than in any other kind of uterine you will learn to appreciate the value of the speculum. The which has been educated to recognise the sensation imparte by the cervix uteri in its various morbid deviations, will of able to detect quite certainly many of the forms of ulcerati inflammatory hypertrophy and induration. But your fing not know what it feels, until your eye has often seen it; an when the sense of touch has been educated to the utmost, it be rash to carry on the treatment of any case of inflammat the cervix, without occasionally having recourse to the use speculum in order to get a view of the diseased part; and w for the diagnosis or the treatment of cervical inflammatio speculum is simply indispensable.

Probably the disease with which you will be most likely found some of the varieties of chronic inflammation of the cervix uteri is carcinoma in the same locality. The symptoms of the one disease very closely resemble the symptoms presented by the other; and though the pain of carcinoma is usually more intense and constant, the menorrhagia more irregular and excessive, and the leucorrhœal discharge more fetid or irritating, yet the differences are all differences in degree, and may not be pronounced enough to warrant you in coming to a conclusion without instituting a local examination. Even on attempting to make a physical diagnosis, you may fall into error unless you are careful to note the exact condition of the cervix; for both in the simple and in the malignant disease you may find the cervix enlarged, and thickened, and hard, and presenting some irregularities on the surface. But there is one point of distinction that will almost always keep you right in your differential diagnosis between the two diseases. When speaking of carcinoma of the cervix uteri, I pointed you to its liability to pass speedily from its primary seat to invade the neighbouring tissues. The result of this spreading of the mischief is found in the degree of fixity which is imparted to the cancerous uterus. Not only does

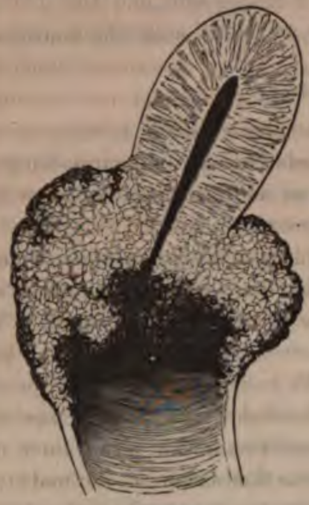


Fig. 132.

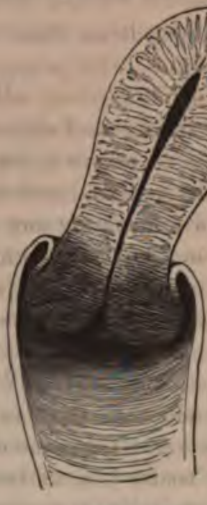


Fig. 133.

Fig. 132. Diagram of carcinoma of the cervix uteri, illustrating the manner in which the disease spreads to the vaginal walls and fixes the lower portion of the uterus.

Fig. 133. Diagram of inflammatory hypertrophy and induration of the cervix uteri, showing the restriction of the mischief to the vaginal portion of the uterus.

the organ become hard, but it feels fixed and immovabl roof of the vagina to which the cancerous infiltration has (see Fig. 132). The induration and enlargement whi from chronic inflammation, on the other hand, are limite vaginal portion of the uterus, and the exploring finger can pass freely up along the cervix uteri, and perhaps feel vaginal portion is elongated, but it finds that the whole freely movable (see Fig. 133). In cases where the diseas strictly limited to the cervix around the os tincæ, the spec reveal to you the difference between the everted edges smooth, reddish, vascular surface of a simple sore, and the edges and irregular, nodulated, ashy surface of a cancerous

TREATMENT.

In the treatment of chronic inflammations of the cervix require to have recourse, first, to constitutional measures improve the general health of the patient; and, secondly, measures fitted to counteract and cure the disease.

I. *Constitutional Measures.*—The health becomes impair the long-continued discharges, and you must apply ap hygienic and dietetic means to have the health restor patient may be obliged to take a more liberal diet than she l in the habit of using; and it may be needful to administe or other tonics, vegetable or mineral. But in the greater p of cases, at least in the better ranks of life, the deterioratio health has resulted rather from excess than deficiency of fo it is often desirable, in conducting the treatment of a pati chronic metritis and cervicitis, to make a complete change ordinary style of living, and restrict her to the use of fish, and other white food, and to forbid the use of any stimulan lighter food will be more likely to be completely digested milated, and will all go to nourish the system, without ex the digestive apparatus, whereas the chemically more n ingesta in which she used to indulge were less perfectly ass and kept up a degree of distress in the digestive organs, w a depressing influence on the system at large; for the nou of the body depends not only on the quantity and quality introduced into the stomach, but more immediately upon portion in which that food is digested and absorbed. I ha seen patients, for example, suffering from gastric ulceratio grew thinner and weaker so long as they tried to feed th on butcher meat and solids, begin to fatten and grow strong at once on betaking themselves to a diet consisting only of whipped-up eggs, milk, and bland non-stimulating fluids. Perhaps you will bear this in mind in treating patients who are the subjects of chronic disease of the uterus, and I doubt not you will sometimes meet with cases where your local measures seem to produce only a limited amount of good, but where they tell at once when you put the patient on a regulated course of diet. But you will find that, however much you may get the general health improved, you cannot put an end to her most distressing symptoms, without having recourse, further, to some

II. *Local Measures.*—The means of local treatment will vary much according to the various forms under which the disease may present itself to our observation.

1. *Local Blood-letting.*—Frequently, where the cervix is engorged and hypertrophied, and deeply injected, as seen through the speculum, the abstraction of a couple of ounces of blood greatly relieves the distress from which the patient suffers, and favours the good effect of whatever other remedies may be considered desirable. The blood-letting may be effected by means of leeches applied to the cervix through a leeching-tube or speculum, or you may scarify the cervix around the os tincæ with any sharp-pointed cutting instrument, such as a tenotomy-knife with a long stem, with which you make a series of small incisions around the os, and, in aggravated cases you make the punctures deeper. It is well to make the patient sit over a dish of hot water, to favour the flow of blood; and, if she has a nurse on whom you can rely, you may order a warm vaginal douche to be administered, special care being taken that the patient is not wetted and chilled during the proceeding.

2. *Counter-irritation.*—Whether or not you deem it desirable to practise the blood-letting, you will, in most cases, do much good to your patient by applying counter-irritation to the lower part of the abdomen, in the epigastric or iliac regions. A series of small blisters, an inch square, one being applied every second or third night along the iliac spaces, often have an admirable influence in hastening the reduction of the internal inflammation; or you may produce an eruption by means of tartar-emetic ointment, or paint tincture of iodine above the pubes until the skin becomes tender.

3. *Local Deobstruents.*—The iodine may be used, further, in the way of a local deobstruent applied through the speculum with a brush to the cervix uteri. I have seen the process of absorption

begun in a thickened and inflamed uterus or cervix that ha other modes of treatment, after the patient had used som made with mercurial ointment; and the use of the mer saries may be followed up with the introduction of pess taining iodide or bromide of potassium, or iodide of lead.

4. *Caustics and Astringents.*—When the surface is a ulcerated, you require to apply some of the gentler caus to stimulate the surface, which resembles that of a weak c ulcer, to take on a healing action. There is nothing n in the general run of cases than lunar caustic, which m plied solid on the end of a quill, or in a solution of t grains to the ounce with a brush or piece of cotton waddi to be applied through the speculum every four or five d astringent or alterative, or more sedative lotion or ointm used in the interval. Its prolonged repeated use, howe to be followed by a troublesome degree of contraction a tion of the os uteri, and it is desirable to vary its employ some other application. Strong tincture of iodine forms most satisfactory applications you can make to the g ulcer of the cervix, all the more if there be some degree trophy present; and it will of itself, in many cases, be the effecting a speedy cure. Sulphate of copper may often with benefit as an alternative; and in the vascular forms which bleed easily when touched with the finger or specul often found the happiest results from the application of a solution of perchloride of iron in glycerine. In the eruptiv disease, more especially in the acne cases, I have been bes with the butter of antimony applied through the speculu brush, and followed by the application of some carbonat to neutralise its excess. Besides making these concentra cations, you are usually obliged to have recourse during the to the injection of some astringent lotion. You may o of the astringent vegetable infusions, as of oak-bark or m weak solution of some mineral salt, as the sulphate c aluminate of iron. Some patients have a difficulty i proper use of injections, and in such a case you may pre astringent in the form of a pessary, the best materi manufacture of the pessary being gelatine, which, when b a small proportion of glycerine, takes up most of the s which are found useful in the local treatment of uterin The boiled gelatine, charged with the medicament, is run in

moulds of the shape of a small Minié bullet; it becomes firm on cooling, and dissolves with the heat of the body when it lies in the vaginal canal. Only make sure that the patient is instructed to pass the pessaries up far enough, so that, when dissolved, the vaginal portion of the uterus is bathed by them, and you will have all reason to be satisfied with the result of their employment.

I have been speaking as if it were the vaginal portion of the uterus alone to which you were to make your applications. But you will understand that in many cases the principal seat of the mischief is within the canal of the cervix, and in that case you must be careful to push your caustic into the canal as far as the os internum. When you are using the caustic quill, this is easily enough done through the speculum, or with a pair of long dressing-forceps. A piece of cotton dipped in tincture of iodine, or a strong solution of caustic, may be carried into the cervix when the os tincæ is sufficiently patulous. It is sometimes difficult, however, to make a thorough application in this way; or you may wish to make an alternative application when the nitrate of silver seems to be having too little effect on the progress of the sore; and then I recommend you to make use of long arrow-shaped pessaries, such as our chemists here have been in the habit of making for us, of dried sulphate of zinc, etc., which can be passed along the cervical canal, to lie and become dissolved there. Where there is any suspicion that the metritis has affected the lining membrane of the uterine cavity as well, the soluble intra-uterine pessary of sulphate of zinc or nitrate of silver has an admirable effect in producing an alterative action in the affected membrane.

5. *Escharotics.*—Where you have to do with cases of inflammatory hypertrophy with induration, however, you will be compelled to apply some of the more powerful escharotics, such as chloride of zinc, or strong nitric acid, or the dried sulphate of zinc. I have found the best results in these cases from the employment of potassa fusa. You introduce it with a caustic-holder through a cylindrical speculum, and must take care to press it firmly against the thickened, hardened lip or lips of the os uteri, and make it to sink into any protuberant nodules. You immediately pour in some wood vinegar, and wash the whole cervix carefully and thoroughly, so as to neutralise the caustic potash. If now you look through the speculum, you will see that you have produced an indentation on the formerly projecting surface; and, if need be, you may make a fresh application to any other portion of the cervix, remembering always

LECTURE XLIX.

ON PROLAPSUS UTERI.

GENTLEMEN—The uterus is subject to various displacements, and I wish now to direct your attention to the kind of displacement of it which you will most frequently be called on to treat in your practice—that, namely, where the organ falls downwards to a greater or less degree in the pelvic cavity, or descends so low as to protrude through the vulva. Let me read to you first the history of two of the patients who have been in the ward, and the note that has been made of their physical condition.

CASE I.—E. R., aged 60, married, began to menstruate so early as twelve years of age. The discharge returned regularly every month, and continued each time for about five or six days. Ceased to menstruate about fifty. Has borne five children—the last twenty years ago. Has enjoyed unbroken health all her lifetime.

About five weeks ago she first observed the uterus protruding slightly from the orifice of the vagina, and her attention was only accidentally drawn to it by observing a few stains of blood upon her linen. The bleeding ceased, and was replaced by a white discharge, small in quantity. The uterus never protruded externally to the vulva, and she has never suffered from pelvic pain or weight, and has only occasionally felt an aching in the back.

On admission.—She enjoys perfect health, with the exception of the uterine derangement. She has a slight leucorrhœal discharge, which, on examination, is observed to proceed from the os uteri. The uterus is procident, and lies immediately within the vulva. It is a little larger than natural, but perfectly mobile and easily reduced. Its lips are large and œdematous, and a slight ring of ulceration exists around the os uteri, but without any notable amount of hypertrophy and induration. The vagina is very much relaxed, and the posterior wall of the bladder hangs loosely into it.

CASE II.—J. M., age twenty-one, unmarried, menstruated first at the age of fifteen, and every month afterwards—the discharge continuing each time for four or five days without pain.

Gave birth to a boy at the full time two years ago. Made a slow recovery, and, on account of peculiar circumstances, was obliged to stop nursing at the third week, and give the child to the care of another, and go herself into service. The service she engaged in was household work of an unusually severe kind, calling forth on her part great and protracted exertions.

The catamenia returned about the third month after delivery and reassumed its usual periodicity and duration. Four months ago the uterus prolapsed ex-

ternally. Previously to that date she had felt dragging pains about the
sides. For three continuous months the uterus was hanging outside
mentioned her condition to any one. A physician then saw her, le
reduced the uterus, but it did not remain within ; for immediately on
her work it again came outside. From that date until her admission
she reduced it every night on going to bed, yet on rising in the morni
fell out, and remained so during the day. During four months it ha
been almost constantly hanging outside of the vagina, and has consequ
subjected to friction of the thighs and dress, and occasionally to sligh
At first she says it was not much larger than one fist, but latterly it
equal in size to two. Since the first occurrence of the prolapsus, there
been a thick fluid resembling buttermilk discharged from the surf
tumour and vagina, occasionally, but not frequently, mixed with blood
the same period also she has had usually some difficulty in voiding
generally a little pain when passing it.

On admission.—She is a strong robust woman, of ruddy comple
enjoys good health. The tumour had been reduced previous to her
The vagina is loose, much corrugated, hard and deficient in sensibi
whitish red colour, and contains a good deal of white, curdy, semi-flui
The urethra is very much thickened. The uterus lies very low in the
feels large and is very mobile, and a slight cough on the part of the pa
duces its expulsion through the vulva. The os uteri is small, and s
its lower end, and surrounded by a small irregular ulcer. Its lips are
indurated. There is also an ulcerated spot on the anterior surface of th
Length of the uterine cavity four inches.

DEGREES OF DESCENT.

The uterus, as it falls downwards, may be met with in
stages of its descent, and the two cases to which I have
your attention illustrate sufficiently the two principal clas
which patients suffering from Descensus uteri are divisible,
regards the degree of dislocation. In the first the descent
complete," and we have a case of Procidentia uteri, the orga
down so far that it has come to rest on the floor of the pel
is ready to protrude through the vulva. In the second the
is "Complete ;" the uterus has slipped over the edge of the pe
is precipitated quite out of the pelvis, and has carried wit
upper extremity of the vaginal canal—the case is one of P
uteri. In its downward progress the uterus at first ret
normal inclination, nearly in the line of the axis of the pelv
but when it reaches the floor of the pelvis its lower e
begins to look forwards, instead of backwards; and a subdi
the cases of incomplete descent has been made according
change in direction of the long axis of the uterus has taken
not. But, whatever the degree of descent, you will proba
that the patient suffering from prolapsus uteri is at the sa
the subject of one or more of the following

ATTENDANT PATHOLOGICAL CONDITIONS.

1. *Elongation of the Cervix Uteri.*—The cervix uteri sometimes becomes the seat of a longitudinal hypertrophy, which may be so great as to cause the orifice to reach the floor of the pelvis, or even to appear at the vulva. This elongation of the cervix may lead you to suppose that you have to do with a case of prolapsus uteri, when, in reality, if you carefully examine the whole organ, you may find that the fundus uteri, instead of being depressed, is elevated. But, on the other hand, elongation of the cervix is one of the commonest accompaniments of prolapsus uteri. The vaginal portion can be ascertained by the finger to be unusually long, and a sound will pass readily, for a distance of three and a half or four inches, into a large proportion of procident uteri.

2. *Hypertrophy and Congestion of the whole Organ.*—The increase of length, however, is not always limited to the cervical portion of the uterus. In many cases the enlargement affects the whole organ. Even if there were no hypertrophy of the uterus ere it began to descend in the pelvis, you can readily conceive how the interference with the free circulation in its walls, which will result from the compression of its blood-vessels, will lead to a persistent congestion and engorgement of its tissues, and leave the walls thickened and hypertrophied; and this secondary hypertrophy of the uterus will have the effect of aggravating and keeping up the tendency to displacement.

3. *Displacement of neighbouring Organs.* — As the descending uterus drags down and inverts the walls of the vagina when it has descended far enough, it necessarily carries with it the adjacent walls of the neighbouring organs. It tells first upon the back wall of the *Bladder.* The vesico-vaginal septum is pushed down in a very marked degree in most cases of prolapsus uteri, and escapes from the vulva before the organ has fairly cleared the perineum. The urethra is at the same time pushed downwards and forwards, and its walls become thickened, as do all the parts around the displaced organ. This dislocation of the bladder makes micturition difficult, and the more the patient strains, if the uterus be not pushed up into the pelvis, the more the escape of the urine will be hindered. It is only at a later stage that the anterior wall of the *Rectum* gets drawn downwards, because the point of its fusion with the vaginal wall is at a lower level; but the function of the organ may be, and usually is, interfered with from the very beginning of the descent of

the uterus, by the pressure of it on the rectum rendering de difficult. In the large masses that have fallen down betw patient's thighs in special cases, we may sometimes be able to some loops of the *Intestines*, for the bowels lie directly in apposit the fundus uteri when it is in its normal position, and when to sink, they descend into the pelvis with it. In some ca tions of the bowel find their way into the recto-vaginal pouc peritoneum, and get carried out with the protruded pelvi through the vulva.

4. *Changes in the Exposed Tumour.*—Whilst the uteru within the vaginal cavity, the mucous surfaces of the cervi the contiguous vaginal walls are commonly the seat of a leucorrhœal discharge, which keeps the parts continuall But when it has become precipitated externally, the exposed membrane dries up and hardens; and where the prolapsus i standing the surface comes to present the appearance of skin with epidermis rather than of a mucous membrane invest epithelium. Very frequently, as in the patient in the wa will find simple ulcers forming on various parts of the surf ticularly at or around the os tincæ. In some cases the ulc of the os have healed, and in contracting have led to occl the os. But more frequently the sores, like those in a co varicose limb, are difficult to heal; and though they can be g almost completely, they are speedily reproduced unless the o replaced and retained within the pelvis.

ETIOLOGY.

The causes of prolapsus uteri have sometimes been divid two classes, according as they, 1st, predisposed the uterus to from its proper position, or, 2d, were immediately influential ducing the displacement. The cases of sudden production of of the womb are, however, comparatively rare, and the cause then produce it act in the same manner as some of those wh a more remote influence. You will find that they may in ge ranged in three different categories, although it is to be reme that the same cause may operate in more ways than one.

1. *Increased Weight of the Uterus.*—Whatever adds, in t place, to the weight of the womb, will have the effect of ca to sink, to some degree, within the pelvis. Even the physi enlargement of it in commencing pregnancy can usually b

to be attended with a temporary depression in its position. The effect becomes more marked in cases where the uterus is enlarged permanently in consequence of inflammation and thickening of its walls, or the presence of a polypus or fibroid tumour, or from subinvolution after delivery, or frequent miscarriages. The addition to the weight may not be confined to the substance of the uterus, but may be due to the pressure exerted upon it through the medium of the superincumbent viscera; and it is by this means that severe exertions come to operate as a cause, sometimes immediate, sometimes more remote, of prolapsus uteri.

2. *Relaxation of the Uterine Supports.*—Some of the causes which operate in the way of adding to the weight of the uterus, increase the tendency to falling down of the organ by, at the same time, producing a relaxation of its supports. The result of frequent pregnancies or miscarriages, for example, is seen not only in the hypertrophy of the uterus, but in weakening and stretching of the uterine ligaments. Whatever stretches, and softens, and relaxes the round or broad ligaments, or the utero-vesical folds of the peritoneum and pelvic fascia, or the walls of the vagina, will leave the uterus more or less free to descend from its proper position; and when once it begins to sink, there will be a constant tendency to increased displacement, from the progressive engorgement of the uterus and the increased strain on its already weakened supports.

3. *Upright Position.*—The effect of all the agencies that tend to depress the womb will be greatly increased, the more the patient is obliged to maintain the upright position for lengthened periods. And this continuance in the upright position will come to be in itself a cause of prolapsus whenever the patient, from the carrying of weights or otherwise, is constrained to keep the pelvis with the plane of its brim more horizontal than usual; for then the uterus will at once be pressed on more directly by the superincumbent viscera, and will tend to sink more readily into the pelvic cavity.

SYMPTOMS AND DIAGNOSIS.

It sometimes happens, as in one of the patients whose history I have cited, that the womb may have descended to a certain extent in the pelvis, without having given rise to such distress as to make the patient aware that she is the subject of any pathological condition. Usually, however, it betrays itself, like other uterine displacements and diseases, by a series of

I. *Functional Disturbances.*—We have, *first*, the usual group of general constitutional affections, which we have had occasion to note in connection with so many other uterine affections; and, *second*, local functional derangements of the uterus itself and the neighbouring organs, such as menorrhagia, leucorrhœa, sense of weight in the pelvis, pains in the loins, frequent inclination to go to stool, and urgent calls often to empty the bladder, which can only be accomplished with difficulty. In the severer degrees of it, moreover, progression is greatly interfered with, and all the symptoms become aggravated when the patient assumes and maintains, for any length of time, the upright position. The patient who comes to consult you will very frequently tell you at once, besides, that she has got a falling down of the womb; but, even if there be a mass protruding from the vulva, you cannot tell what it really is without investigating its

II. *Physical Condition.*—When you have to do with a completely prolapsed uterus, you will find a tumour, the form of which is usually oblong, and narrowed at the lower extremity, where you will be able to discover a transverse opening—the orifice of the uterus. The surface of the tumour is formed by the inverted walls of the vagina, through which you will be able to feel the outline of the uterus. If the abdominal walls be not too thick, palpation over the pubes enables you to trace the absence of the fundus from its usual position; but the parts are in general so far relaxed that you can replace the prolapsed organ and define its enlargement by a simultaneous external and internal examination. That the transverse depression at the lower end of the protuberance is really the uterine orifice, and not a mere ulcer on the surface of a tumour, you can decide by introducing the sound, which will readily pass through up to the fundus uteri. You will, at the same time, in most cases, discover an elongation, more or less pronounced, of the cavity of the uterus.

DIFFERENTIAL DIAGNOSIS.

There are various morbid conditions of the uterus and vagina, which are liable to be mistaken for prolapsus of the uterus, and from which you must know how to distinguish it.

1. *Cystocele.*—Very commonly, when the uterus descends in the pelvis, a fold of the anterior wall of the vagina descends in front of it, and escapes first from the vulva. But such a prolapse of the vesico-vaginal septum may occur, though the uterus retains its normal

situation; and, as patients are apt to suppose that they have a falling down of the womb whenever any abnormal part makes its appearance at the vulva, you will sometimes be led to suppose that you have to do with a case of prolapsus uteri where only a cystocele exists. A vaginal examination will usually satisfy you at once that the uterus is in its normal situation; and, on passing a sound or catheter into the bladder, you are able to determine distinctly the nature of the protrusion.

2. *Rectocele.*—A similar descent of the recto-vaginal septum sometimes, though much more rarely, occurs, and is to be diagnosed by passing the finger through the anus and into the projecting pouch, while the os uteri can be felt higher up in the vaginal canal.

3. *Inversion of the Uterus.*—Where the uterus has become inverted, the fundus lies, with its exposed mucous membrane, low down in the pelvis, and even sometimes protrudes from the vagina, so as to resemble a simply prolapsed uterus. The history of the case will usually guide you to a tolerably correct guess as to the nature of the accident; for the inversion is in most cases found immediately after parturition, and gives rise at once to symptoms of distress, whilst the prolapse of the organ is commonly produced very gradually, and may not attract the patient's attention until it begins to protrude externally. Then, when you make a local examination, the absence of the os in the lower part of the tumour will lead you to search for the lips of it encircling the base; and, on attempting to pass the sound through the cervix, you will find that it only enters for a few lines, and is arrested at the point where the uterus is folded down upon itself. The prolapsed uterus, moreover, can be readily pushed upwards into its place, so as to be felt between the exploring fingers and the hand placed above the pubes, whilst the inverted organ can only be returned after careful manipulation.

4. *Polypus.*—Polypoid growths from the uterus and vaginal walls have also been mistaken for prolapsus uteri, but may always be distinguished by determining the position of the orifice of the uterus, and introducing into it the uterine sound.

PROGNOSIS.

This kind of uterine displacement may be attended with no impairment of the uterine functions, and does not always hinder the occurrence of impregnation. In the majority of cases, however, it is attended with a decided degree of ill-health, and though it does not usually lead to any fatal issue, it keeps the patient in a state of continual discomfort, and unfits her largely for her usual employments, and it shows no tendency towards a spontaneous cure. Indeed, unless it be subjected to some kind of treatment, the probability is that it will only become more and more aggravated, and the question with you will be how you can best remedy or relieve the mischief. For

THE TREATMENT

is twofold, according as you adopt some operative measures calculated to effect a radical cure, or are restricted to the employment of means likely to palliate the patient's symptoms. Let me speak first

A. OF THE PALLIATIVE MEASURES.

1. *Rest and Horizontal Position.*—If you meet with a case where the uterus has been suddenly forced down through the vulva in consequence of some violent exertion, it is quite possible that the keeping of the patient at rest and recumbent for a length of time, after you have replaced the uterus, may have the effect of allowing the injured ligaments to recover their power, so that the organ shall be afterwards kept in its proper position. In such a case the restriction of the patient to rest and the horizontal position would have all the value of a curative measure. But in the generality of cases it is only valuable as a means of resting the ligaments which have been over-stretched, and which have an opportunity of in some degree recovering their tonicity when they are no longer on the strain ; and it aids further in promoting the reduction which you will try to bring about in the congested uterus by means of

2. *Antiphlogistics and Deobstruents.*—I have told you that you will commonly enough find the uterus in these cases of prolapsus the seat of an inflammatory engorgement, which you must try to subdue ere you have recourse to the use of any appliances to retain the organ in its position. With this view it is sometimes useful to apply a few leeches, and afterwards to make the patient use mercurial pessaries, or pessaries of iodide of lead or potassium, whilst she is kept at rest, and the state of her emunctories is carefully attended to.

3. *Local Astringents and Tonics.*—Then, further, the vaginal walls are all relaxed and lubricated by the leucorrhœal discharge, and you will seek to counteract this by means of injections of oak-bark, or of sulphate of zinc or iron and alum, or any similar substance, which will have the effect of checking the discharge and bracing up the softened tissues.

4. *Mechanical Support.*—But though you have succeeded in replacing the prolapsed uterus, you will find that, in order to retain it in position, you must have recourse to the application of mechanical supports. Otherwise, as soon as the patient gets up and goes about again, the organ begins to descend, the congestion returns, and all the good of her few weeks' rest is in a few days undone. Now there is an endless variety of instruments that have been invented and employed for the retention of the prolapsed uterus. The very number and variety of these vaginal pessaries, as they are called, prove how imperfectly any one of them is fitted to control in all cases the prolapsus; yet often enough you will meet with cases where the introduction of a well-fitting pessary will keep the uterus *in situ*, and procure for the patient a degree of comfort to which she may long have been a stranger. I show you (see Fig. 134) the instrument which I have found serviceable in the largest number of cases. It consists of an oblong shelf, with a slightly concave upper surface, on which the uterus rests, and having attached to the middle of its inferior surface a stem, which, when the instrument is in position, lies between the lips of the pudenda, and by means of which the patient can remove it from time to time. The two extremities of the shelf rest on the inner surfaces of the two ischia, and the notch in its anterior border prevents undue pressure on the urethra or neck of the bladder, although in cases of marked cystocele it is better to make the pessary without the notch. It is very light and cheap, being made of gutta percha; and you can easily make one at any time to suit any particular case. It has not the disadvantage of causing any expansion of the vaginal walls, as is the case with the air-bag which some practitioners prefer, nor is it apt to go wrong, like the hinged pessary of Zwanck, which it resembles in the kind of support it affords. But, like all vaginal pessaries, if left in the canal without being frequently removed and

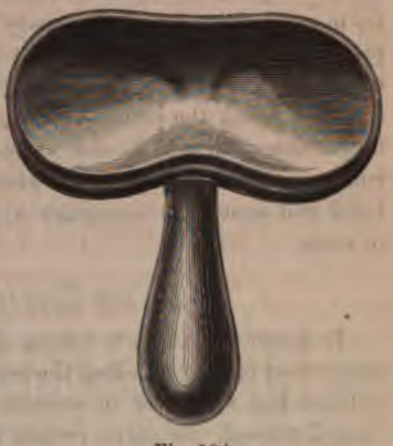


Fig. 134.

Fig. 134. Pessary for prolapsus uteri.

cleaned, its presence increases the leucorrhœal discharge, and if it be left all too long, the discharges almost certainly become fœtid, and the vaginal walls may even ulcerate around the circle of pressure exerted by its rim. Hence the necessity for its frequent removal, both that it may be cleaned, and that some astringent injection may be thrown into the vagina.

In some cases you will find that you can best afford relief by applying a bandage round the lower part of the abdomen, so as to press upon the abdominal walls above the pubes, and prevent the downward pressure of the abdominal upon the pelvic viscera. The efficacy of the support thus afforded by Hull's and similar bandages is often increased by fitting a perineal pad to the lower border, in the form of a T bandage. A bandage of this sort is sometimes useful in cases where a vaginal pessary is worn; and some practitioners prefer to apply a pessary fixed on a strong bent wire, the external extremity of which is fixed over the pubes in a belt or bandage strapped round the patient's pelvis. But whilst in a large proportion of cases you will be able by such means to procure comfort for your patients, there are others where you will give more effectual relief, and sometimes accomplish a perfect cure, by having recourse to some

B. OF THE OPERATIVE MEASURES.

1. *Producing Adhesion between the two Labia Pudendi.*—In prolapsus uteri of long standing, the perineum is stretched and softened. and has lost all power to support the uterus, which, after it has escaped through the vulva, presses backwards on the border of the perineum, and tends to produce an atrophy of its tissues. So much is this the case, that at last the perineum may not only be useless for the purpose of retaining the uterus itself within the pelvic cavity; it fails even to afford a floor on which a retaining pessary might rest. In such cases, it seemed natural to suppose that great advantage would be obtained by making a raw surface, of a horse-shoe shape, on the fourchette and labia pudendi, and bringing the wound-surfaces together, so as to close more or less completely the vaginal orifice. The idea was carried into practice by Fricke and others with the simple interrupted suture, and by Kock and Geddings with the quill suture, many years ago; and more recently the operation has been performed in one or other of these methods by many surgeons—metallic wires being used instead of silk sutures, and with satisfactory results. I need not repeat to you the details

of the operation, which I have already described in showing you how to repair the ruptured perineum. (See page 653.) Sometimes this operation of episioraphy, as it is called, leaves the vulva so narrow and the pelvic floor so firm, that the uterus no longer is able to escape, and the patient is cured of her prolapse. In other cases, where the new perineum is not sufficient of itself to retain the uterus, it yet forms a floor on which a supporting pessary can rest. Sometimes it relaxes and becomes re-distended, and in such a case the operation may be repeated, and a more complete closure effected.

2. *Producing Adhesion between Surfaces of the Vagina.*—I believe it was first proposed by Dr. Marshall Hall to treat cases of bad prolapsus uteri by making raw surfaces on the vaginal walls in a longitudinal direction, and bringing the wounds together with stitches, so as to produce a narrowing of the vaginal canal. His proposal was carried out by Hemming and Ireland in our own country, and in France by Velpeau and Berard. It is, however, only since we have learned the value of metallic sutures in keeping together the raw surfaces long enough to ensure their firm cohesion, that this operation of elytroraphy has been more systematically employed by Dr. Marion Sims and others, by paring two strips of the mucous membrane from the anterior wall of the vagina—not running parallel to each other, but converging like the limbs of the letter V. The apex, where the limbs meet, falls at the lower extremity of the vagina, behind the urethra; and the divergent points at the upper extremity, in front of the cervix uteri, have been joined together by a transverse strip by Dr. Emmett. The operation is not a difficult one to perform, and it has the good result of rendering the vagina so narrow that the uterus can no longer descend through it.

3. *Producing Cicatricial Contractions in the Vagina.*—I have warned you of the necessity for the frequent removal of vaginal pessaries, lest the permanent, though slight, pressure exerted by the rim on the walls of the vagina should at length produce ulceration on its mucous membrane. Now such a result is sometimes desirable if we can keep the patient at rest afterwards until the ulceration has healed; because, as it heals, the contraction along the circle of the cicatrix may produce such a narrowing of the canal of the vagina, that the reproduction of the prolapsus will be prevented. The ulceration that has thus occurred accidentally, has in various ways been produced intentionally. It has been procured by making the patient wear a large pessary, which would exert more pressure

than usual on the wall, or by making her wear a metallic p copper, with a ring of zinc round the margin, as suggested Graham Weir, that by a slow galvanic action the tend ulceration might be hastened. Phillips and others have course to caustics; and Dieffenbach, Lawrie, etc., have app actual cautery to produce a more firmly contracting sca vagina. Some French surgeons have made use of serres-fi Bellini resorted to an operation called colpodesmoraphy, wl sisted of the passing of a stitch in a circle around the uppe the vaginal canal underneath the mucous membrane, and g tightening it, till, in ten days, a portion of the vaginal muco brane sloughed and left a contracting scar. These various ings all lead to results which for a time may be most sati The cicatricial ring forms a shelf on which the uterus rest prevented from descending. But if the conditions which o led to the production of prolapsus be still present, the prob that the cure will be only temporary, as the cicatrix g softens; and if the cervix once begins to project through like a wedge, which soon expands the circle. You will, t find it more satisfactory to have recourse to the other o and produce a diminution of the calibre of the canal alon all its length, according to the methods of Sims and Emmet

4. *Amputation of the Cervix Uteri.*—The resources of are not, however, exhausted by the procedures to which referred. In cases where there is less a descent of the who than an elongation of the cervix, and even in cases wher tinctly prolapsed uterus presents a marked hypertrophy cervix, amputation of the projecting vaginal portion may recourse to. The tissues in such cases are usually very to I have seen the chain of Chassaignac's écraseur give way du operation; but, when such an accident happens, the operat be completed with a pair of scissors, and there is usually litt bleeding from the vessels, which had become occluded un compression of the instrument. Should there be any thr of hemorrhage, it can be easily controlled by means of the phate or perchloride of iron.

5. *Extirpation of the Uterus.*—I ought to add, that in stances where prolapsus uteri has been associated with m disease of the cervix, the removal of the whole organ h resorted to. It was effected, by means of the ligature, by F and Marjolin. Cruveilhier proposed, as a safer means,

into the back wall of the inverted vagina, drawing out the uterus, and then excising it; and, in one case, Langenbeck, after cutting across the vagina, drew down the uterus, dissected it from the peritoneum without opening into the peritoneal cavity, and excised it, leaving only a small portion of the fundus which was found healthy. Such a formidable procedure, however, you would never dream of having recourse to, in an uncomplicated case of prolapsus uteri; for this condition, though productive of great discomfort, has no tendency to a fatal issue. It can often be cured by the partial closure of the vulva, or by procuring sufficient contraction of the vagina; and the distress it causes can at least be lessened by the use of some of the mechanical appliances to which I have directed your attention.

LECTURE L.

ON RETROVERSION OF THE UTERUS.

GENTLEMEN—A patient who came to my house the othe
marked that she had come walking, and added that it was
time she had walked out of doors for three years. Such an
is of not infrequent occurrence. The lady I refer to tal
another, with whose sister she was acquainted, and that
for about fifteen years been unable to walk; and I wish to
to-day what it was that prevented these ladies, as it preven
from walking, and to teach you also how you may reli
symptoms and rectify their malady.

PATHOLOGY.

The uterus in its normal position stands with the fund
level of the plane of the pelvic brim, and the os looking d

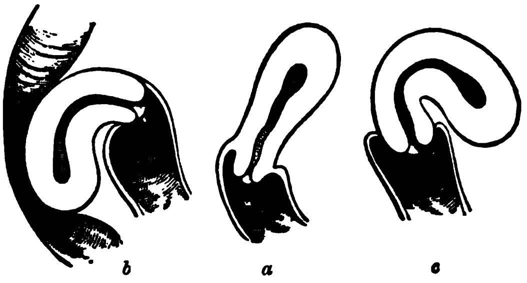


Fig. 135.

and backwards towards the hollow of the sacrum, so tha
corresponds to the axis of the brim of the pelvis (see Fig
Lying immediately behind the bladder and in front of th
it is subject to constant slight changes in position, in c
with the alternate distension and evacuation of these org

Fig. 135. Diagram of the unimpregnated uterus. *a*. In its norm
direction, and in a state of, *b*, retroversion, and, *c*, anteflexion.

more intimate connection with the bladder, in particular, will cause it to incline more or less decidedly from the straight line of its ordinary situation when that organ empties or fills, so that we cannot regard the uterus as holding a rigidly fixed relation to the pelvic walls and pelvic contents. The fundus uteri may be turned forward to a very appreciable extent without passing the range of its normal anatomical situation; for in childhood such a deviation is the rule rather than the exception, and its more upright position may be only assumed at or subsequently to the period of puberty. A very distinct inclination of the fundus uteri towards the bladder may thus exist within perfectly physiological limits; but when the dislocation occurs to a greater degree it begins to give rise to symptoms of distress, and the pathological condition of anteversion or anteflexion (see Fig. 135, *c*) is established. It is of the dislocations backwards, however, that I wish to speak to you just now; because, although you will more frequently find the uterus anteverted in making post-mortem examinations, or when you have occasion to make a vaginal exploration in the absence of any marked symptoms of deviation, yet the retroversions are of greater importance clinically; and in cases where symptoms of deviation exist you will, according to my experience, much more frequently find the uterus retroverted (see Fig. 135, *b*) than anteverted. And if I describe to you the means of detecting and rectifying a retroversion of the uterus, you will be able to apply the principles of diagnosis and treatment to the other uterine deviations. Some writers have insisted much on the distinctions between the different varieties of dislocation backwards. For, as you will see represented in this diagram (Fig. 136), the whole uterus may be turned backwards, the flexion taking place at the upper extremity of the vaginal tube, when you have the condition to which the term Retroversion (*a*) should be properly restricted. In such cases the axes of the body and cervix uteri run in a straight

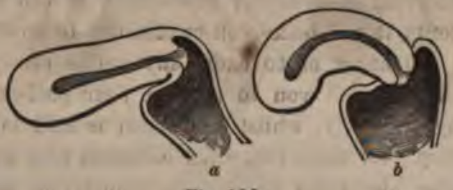


Fig. 136.

Fig. 136. Diagram of posterior dislocations of the uterus. *a*, Retroversion proper; *b*, retroflexion.

line at an angle, more or less acute, to the axis of the vagina. But sometimes the flexion takes place in the uterus itself, commonly at the level of the os internum, and then the axis of the body forms an angle with the axis of the cervix, whilst the latter corresponds more nearly with the axis of the upper part of the vagina. The deviation is then described as Retroflexion (*b*). The degree of displacement varies in different cases, so that in the case of the retroflexions, for example, the body may be bent on the cervix so as to bring the fundus down to the level of the os tincæ (see Fig. 136, *b*). In other instances the flexion is not so great; whilst in a third class the fundus may fall much lower (see Fig. 135, *b*), and descend as far as the bottom of the recto-vaginal fold of the peritoneum. All these variations in the kind and degree of displacement are not, however, of very great practical importance; for they are not separated by any distinct lines of demarcation, and they may all arise under the same conditions, produce the same symptoms, and are amenable to the same remedial measures.

ETIOLOGY.

Among the conditions that favour the occurrence of retroversion, we find hypertrophy of the organ, from whatever cause, occupying a leading place. In a large proportion of cases of retroversion of the uterus the organ is found to be more or less enlarged—sometimes from sub-involution after parturition or abortion, sometimes from chronic metritis, sometimes from the presence of a fibroid tumour in its walls. If you bear in mind the danger of this displacement occurring immediately subsequent to the evacuation of the gravid uterus, it will make you careful not to apply a binder or pad in such a manner as to exert any undue pressure over the fundus, and it will lead you to caution your patient against the risks of rising too early, whilst the organ is still heavy, and its supports relaxed; for these two other elements may also come into play in bringing about the dislocation, namely, on the one hand, direct pressure, as from a binder, or the weight of superincumbent viscera, or straining of the abdominal muscles; and, on the other, a weakening of the ligaments that serve to retain the organ in its normal situation. Of these, probably the most important for the prevention of retroversion are the recto-uterine folds of the peritoneum, with the underlying layers of the pelvic fascia, and the round ligaments running from the upper angles of the uterus towards the inguinal canals. Some pathologists have sought for the cause of the production in atrophic changes occurring in the uterine walls; but although at the point of flexion such change is most unmistakable, it may perhaps be as frequently a consequence as a cause of the displacement. And I ought to add that whilst a pelvic peritonitis, which has left the fundus uteri tied to the rectum, may undoubtedly become a cause of displacement for the organ, yet in most cases where we find them co-existing, it is not always easy to come to a conclusion as to whether the adhesion be a cause or a consequence, or merely a complication of the retroversion.

FREQUENCY.

Retroversion of the gravid uterus has long been known and recognised as an occasional complication of early pregnancy, but up till fifteen or twenty years ago the displacement of the unimpregnated organ was regarded as a condition of the greatest rarity; and when I wrote a memoir on the subject in 1848, I quoted the opinions of some of the principal writers on the diseases of women, who all agreed in speaking of this as an exceedingly rare disease. All gynæcologists, however, have now come to regard it as a condition of every-day occurrence, and this change in opinion has been brought about simply by the facility and certainty with which we can now recognise it. We see the same revolution taking place in regard to the ideas as to the frequency of other diseases. Thus Dr. McClintock tells us that he met with some seventy cases of pelvic cellulitis during the seven years of his Mastership of the Rotunda Hospital, Dublin; while in the record of cases observed during the same length of time by his predecessor, Dr. Collins, there is a notice of only two. Now, in all probability, there were about as many cases during the service of the earlier as of the later observer, but they were not recognised and recorded, because the attention of the profession had not at that time been so fully awakened as it afterwards became to the symptoms and diagnosis of pelvic cellulitis. So there were doubtless cases enough of the retroversion of the unimpregnated uterus in the hands of practitioners, where the patients were supposed to be the subjects of some other form of disease. My predecessor, Dr. Hamilton, for example, in his *Outlines of Midwifery*, says: "An unequal projection, of different sizes, is occasionally discovered on the posterior part of the uterus, resembling in shape the tubera which form upon the surface of the liver, but dif-

fering from tubera in being of a more resisting texture, and i
pained on pressure. From the cases which have fallen un
author's notice, it appears to him that the following is the
of this fortunately rare disease. At first there is a slight
ment of the uterus, with a little thickening and tendernes
posterior surface, occasioning a sense of bearing down on
any unusual exertion, and an obscure gnawing pain tows
back part of the pelvis. In the progress of the disease the p
surface of the uterus becomes more and more unequal, till
distinct projection, like a walnut, or even larger, can be
examination per anum. At this stage of the disease the pat
neither stand nor sit upright, such is the continued uneas
the back part of the pelvis. It is remarkable that in this,
as in several other of the local diseases of the uterus, the ca
continue to flow as usual. In the early stages of this dis
progress has been generally checked by the means employed
of chronic enlargement of the uterus; but in the latter stag
is, after the circumscribed projection has taken place, no oth
of treatment have hitherto proved successful." Some
cases which thus puzzled Dr. Hamilton, I have had occ
examine, and the "unequal projection" which he speaks of,
found to be the retroverted fundus of the uterus. I have
patient with a tumour which was thought by some to be a d
ovary: by others it was regarded as a fibroid tumour; Dr. H
thought it a specimen of the tumour which he had describ
Charles Clarke had diagnosed carcinoma uteri; and after al
a case of retroversion of the uterus. The nature of it was
enough proved by the use of the sound, in the manner I sh
to show you when I tell you how you may recognise the
But until the practice of exploring the condition of the ute
sound passed into its interior came into use, the retroversion
we so frequently meet with now used simply to be overlooked
understood. I first came clearly to recognise the retroversio
case of a patient whom I saw with the late Dr. Abercrombie.
at once to two other patients with similar tumours, and by t
means found them also to be the subjects of the same displa
But it is time that I should tell you more definitely the
symptoms that are present in such cases, and describe the m
which you may arrive at a satisfactory diagnosis.

SYMPTOMATOLOGY.

In a large proportion of cases the uterus may be bent backwards without giving rise to any marked symptoms. In other instances, however, the patient may become the subject of a series of

I. *General Constitutional Disturbances.*—Any of the secondary sympathetic phenomena that are liable to be produced during the progress of other uterine diseases may be excited by retroversion of the organ. I have seen the most varied groups of these functional derangements occurring in patients who, from their history of themselves, might be guessed to be pregnant, or to be the subjects of some grave disorder of the sexual system; but in whom no other change could be detected than a displacement backwards of the uterus.

II. *Local Functional Disorders.*—Much more constantly the displacement gives rise to some local disturbance. It may indicate its presence, for example, by

1. *Disturbed Menstruation.*—When the uterus is bent upon itself its canal becomes occluded at the point of flexure, so that the free escape of the monthly discharge is impeded, and the patient suffers from *dysmenorrhœa* in consequence of the spasmodic efforts excited in the uterus to empty itself of its contents. The detention of the blood within the cavity is liable to be attended with the formation of clots, the expulsion of which may add to the patient's suffering. Where there is some degree of hypertrophy associated with the displacement, the patient may be the subject of *menorrhagia.* Much more rarely she is the subject of *amenorrhœa.*

2. *Impaired power of Reproduction.*—Anteversions of the uterus are more common than retroversions in the case of sterile women who have never borne children at all; but women who have given birth to one or two children, and have then become barren, are frequently found to be subjects of retroversion. In many cases this is the symptom that leads the patient to seek professional advice and aid, and the prognosis in sterility, superinduced on retroversion, is happily of the most favourable kind.

3. *Interference with Bladder, Rectum, and power of Progression.*—When the uterus becomes folded back in the pelvis it exerts a pressure on the neighbouring organs which interferes directly with the due performance of their functions. The bladder, in one class of cases, is not allowed to distend completely, and the patient has frequent calls to urinate. In another, the urethra gets compressed at

its origin, so that the evacuation of the organ is effected only with pain and difficulty. In like manner the rectum is pressed upon, and occasionally becomes the seat of an irritative mucous diarrhœa; more frequently its lumen is narrowed, so as to render defecation as difficult as in organic stricture of the bowel. In yet other instances, the pressure affects more the nerves passing through the pelvis, and the patient suffers from pains in the lower limbs, and, like the ladies of whom I spoke at the commencement of the lecture, progression becomes difficult, and sometimes impossible. It is not easy to understand why a displacement, which in some women causes little or no disturbance, should in others be the cause of such marked distress; but though we may not be able to explain it, the fact remains, and I have seen many women who for years had been unable to take any out-door exercise, and in whom the power of progression was restored on the restoration to its proper position of a dislocated uterus.

PHYSICAL DIAGNOSIS.

What, then, you will ask, are the means by which we are to detect this kind of dislocation? Let me tell you that the speculum in such cases will yield you no information. Dr. Robert Lee, who deprecates the abuse of the instrument, speaks as if it could aid us in the detection of a uterine displacement; but whilst it may enable us to discover some co-existing ulceration of the cervix uteri, it will not guide us in any degree to the discovery of retroversion.

1. *Tactile Examination.*—The touch will tell us whether the os uteri is in an abnormal situation, and looking in an unusual direction. We may find the orifice directed forward, so that in cases of complete retroversion, where the whole organ is turned back at the roof of the vagina, we have to pass the finger up behind the symphysis pubis to feel the os uteri. In cases of flexion of the body on the cervix, the direction of the cervix and the situation of the os may be more natural; but, in any case, we can feel the displaced fundus through the posterior wall of the vagina. That it is the fundus uteri we can often satisfy ourselves by making a

2. *Combined External and Internal Examination.*—The finger or fingers of the right hand in the vagina can detect the presence of a tumour behind the cervix uteri, and may determine, with some little degree of accuracy, its connection with the uterus; but it is only when the left hand is placed above the pubes, so as to fix the organ and trace its limits from above, that we can make out its exact lie

and condition. We can then define the outline of the uterus, trace the continuity of the retroflected fundus with the body and cervix, or recognise the horizontal lie of the retroverted organ, and determine the degree to which displacement has occurred. When you have become familiarised with the practice of gynecological exploration, this combined external and internal manipulation will, in a multitude of cases, leave you perfectly satisfied as to the real state of matters, and warrant you in forming your diagnosis and instituting a corresponding line of treatment.

3. *Use of the Sound.*—Until your fingers have got accustomed, however, to detect and distinguish the various diseases and displacements of the uterus, you will require to educate yourself, as the profession in general has educated itself, to diagnose with certainty the displacement by means of the uterine sound (see Fig. 137).

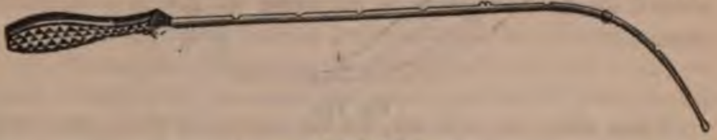


Fig. 137.

Previously to the introduction of the practice of intra-uterine exploration, we had all, as I have told you, often enough felt the retroverted fundus uteri, but it was not until the sound had shown us what it really was, that we learned afterwards to recognise it by the sense of touch alone. And there are still many cases where the unaided palpation and examination will leave us in uncertainty as to the nature of the patient's malady, and where the sound will make it clear beyond the shadow of a doubt. The sound enables us to detect the dislocation, because, first of all, after the point has entered the canal of the cervix, it becomes arrested at the place of flexion, and will not pass on into the cavity of the uterus in the usual line of the pelvic axis. If now the point of it be directed backwards toward the hollow of the sacrum, while the handle is raised towards the symphysis pubis, instead of being pressed as usual on the perineum, the point will be found passing backwards and sinking into the substance of the tumour. The finger in the vagina can then feel the sound distinctly in the interior of the tumour, which you thus conclude to be the displaced fundus uteri. If still there be some doubt, the sound may be turned on its axis, when it will be felt lifting away the tumour from behind the cervix uteri

Fig. 137. The uterine sound.

(see Fig. 138); and if now the hand be placed over the pubes, it can discover the fundus uteri in its normal situation, and the sound in its interior. Finally, if the displacement be of old standing, you will find, on the withdrawal of the sound, that the fundus will topple over again very soon, and be felt once more in the form of a tumour through the posterior vaginal wall.

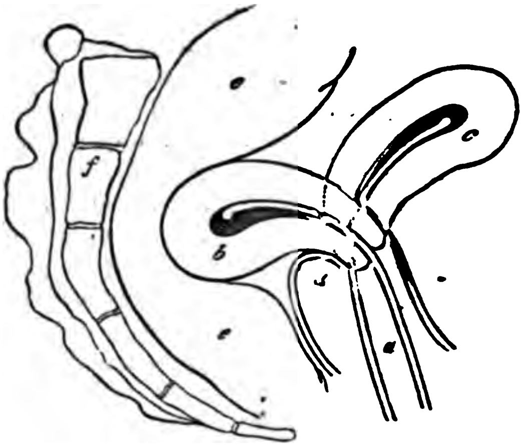


Fig. 138.

DIFFERENTIAL DIAGNOSIS.

1. *Pregnancy.*—I have stated that many of the minor constitutional symptoms of pregnancy may be developed in connection with this displacement; and in a married woman, anxious to have a family, the idea is very likely to arise that she is pregnant when she is really the subject of a retroversion of the uterus. The sound would settle the question at once, but it must never be used where a patient has passed a period or two, and where, therefore, there is the possibility of the presence of an ovum in utero. If, in such a case, the results of your vaginal exploration, combined with external palpation, leave you in any doubt, you must call in the element of time to decide the question; and after suspending your decision for a few weeks, the progressive enlargement of the uterus, and continued abeyance of the menstrual discharge, on the one hand, will deepen the conviction that you have to do with a case of pregnancy; or the unchanged condition of the uterus, and the presence of the

Fig. 138. Diagram of the position of the retroverted uterus *b*, and its replacement to *c* by the sound *d*; *e*, the rectum; *f*, the sacrum; *a*, the vagina.

catamenia, will warrant you in using the sound to prove it to be retroversion.

2. *Fibroid Tumour.*—The disease with which it is most likely to be confounded, and from which it is, perhaps, most difficult to distinguish it, is fibroid tumour of the uterus. A fibroid on the back wall of the uterus, when touched through the roof of the vagina, may have all the feeling of a retroflected fundus uteri, and may resemble it most deceptively in size, shape, and situation as well. Nor is there any kind of difference in the functional disturbances which could guide you in distinguishing between them. But the sound will clear up the matter for you in any case; and even when you have a retroversion caused by the growth of a small fibroid in the back wall of the uterus, you will discover the displacement by the direction followed by the sound on entering the cavity, and you will be able at the same time to trace the thickening in the uterine wall betwixt the sound and the exploring finger.

3. *Ovarian Tumours behind the Uterus.*—When the ovary has fallen down behind the uterus, and more especially if it be enlarged and adherent to the posterior wall, the sense of touch may leave you uncertain as to its nature; but the use of the sound will tell you that you have not to do with a retroverted uterus.

4. *Inflammatory and Hemorrhagic Tumours.*—In pelvic cellulitis or peritonitis, and hematoma, you may have the inflammatory deposit, or the blood-clot, localised behind the uterus; and if the history of the case be of such an indefinite character as to leave you in doubt as to the nature of the swelling, the sound again will resolve the doubt. The more diffused outline of the inflammatory swelling or of the hematocele will usually, however, be an index of its real nature, and will make you the more cautious in the use of the sound, lest by its rash introduction you produce some irritation, and rekindle, into an acute form, an inflammation that had become chronic and quiescent.

5. *Extra-Uterine Pregnancy.*—You may be in doubt as to whether a tumour felt between the rectum and vagina be the retroverted fundus uteri, or an ovum lodging and undergoing development in the recto-vaginal pouch of the peritoneum, till the introduction of the sound into the uterus in its normal direction excludes the possibility of retroversion.

6. *Carcinoma.*—I have known a simple retroversion of the uterus regarded as a case of cancer; and, on the other hand, I have seen a case of cancerous disease of the rectum which had decep-

tively the feeling of a retroverted uterus. In the former case the sound tells what it is, and in the latter what it is not.

7. *Stricture of the Rectum.*—If you will remember the liability of patients to suffer from difficulty of defecation, who are the subjects of retroversion of the uterus, you will be on your guard against making the mistake which has been made time and again, of supposing them to be the subjects of stricture of the rectum. You have only to make a combined external and internal examination, or introduce the sound into the uterus, and you will be kept from the vain effort to relieve the patient's symptoms by passing bougies into the rectum, and you will be guided to a surer means of relief and a more satisfactory cure of her condition.

TREATMENT.

These displacements of the uterus, as I have shown you, are extremely common; but you must not suppose that in every case they call for special treatment. On the contrary, you may discover a retroversion in women in whom it is producing no marked symptom of distress, and in whom it would, therefore, be altogether wrong to interfere for its reduction. Where it produces some disturbance of the functions of the rectum, however, or of the bladder, or the uterus itself, you will be obliged to use means to relieve the symptoms and to rectify the dislocation.

1. *Postural Treatment.*—Some have recommended that the patient should be kept for a length of time in the horizontal position, and the late Dr. Rigby used to advise patients to lie in the prone position, as that which was likeliest to benefit the morbid condition. Such a measure, however, is of no avail to restore the displaced uterus in those cases which most urgently call for treatment; and it is only likely to be of service in those cases where a patient, who had suffered from retroversion, has conceived and given birth to a child. Such a woman would do well to prolong her post-partum period of recumbency for a couple of weeks beyond the usual time, in order to avert the chances of the reproduction of the displacement whilst the organ is still enlarged and heavy.

2. *Removal of Co-existing Morbid States.*—Some practitioners have fallen into the mistake of supposing, because cases of retroversion occasionally are found without any marked disturbance being produced, that the displacement never, under any circumstances, causes distress or requires distinctive treatment. Now, whilst I have only to state this opinion to show you its absurdity, I must

warn you against a mistake you might be apt to make in an opposite direction, if you were to undertake to rectify a retroverted uterus, and overlook any co-existing morbid condition. I shall have to point out to you, in a little, how you may best treat a case of retroversion where the uterus is hypertrophied. What I wish to impress on you now, is the necessity of noticing, and using all appropriate means to reduce any chronic metritis, or other inflammatory complication which may be present, before having recourse to the reposition of the organ. Were you to attempt to replace a retroverted uterus, in or around which there was inflammatory action in progress, you would run the risk of aggravating the mischief, without the prospect of attaining any useful result. But, after all the concomitant mischiefs have been remedied, you will feel compelled to use means for the

3. *Restoration of the Uterus to its Normal Situation.*—Sometimes you may replace the dislocated organ by means of one or two fingers passed up behind the cervix and pressing upon the fundus whilst the patient is laid somewhat in the prone position. Ordinarily, you will be making use of the sound to perfect your diagnosis; and at the same time you will employ it as a means of treatment for restoring the uterus to its proper place. This you can do, as I have described, by simply turning the sound on its axis. As its extremity revolves within the cavity of the uterus it lifts up the fundus and leaves the uterus in its normal situation (see Fig. 138). Some surgeons prefer to use a special instrument for effecting the reposition, consisting of a sound, furnished at two and a half inches from its extremity with a joint, which allows of the point being set at various angles to the stem by means of a screw or spring worked from the handle. It was supposed that there was more safety in elevating the uterus by means of an instrument which made no revolution in its interior; but I have never met with such difficulty in the restoration of any uterus which I thought it needful to replace, as to tempt me to use the special instrument instead of the ordinary sound. The sound turns easily enough in a uterus which is not bound down by inflammatory adhesions; and such a uterus one need not attempt to lift up rapidly by means of any variety of repositor. The uterus, however restored, in some few cases retains its place; and, if the patient keep carefully at rest for some time afterwards, she is permanently cured. This is more likely to occur where the dislocation is recent, and has been suddenly brought about. Usually,

as I have hinted, the fundus falls back again as the sound is withdrawn. Where this happens, and the condition is not of too long standing, you may hope to succeed by replacing the uterus every day or two with the sound, and keeping the patient quietly in bed or on a couch. But even the repeated reposition of the organ does not often suffice. The walls of the uterus have got thinned at the point of flexion, and the supporting structures are all relaxed, and you find that you make no progress unless you can adopt some means for the

4. *Retention of the Replaced Uterus.*—Various proposals have been made for maintaining the uterus *in situ* until it should have recovered its tone sufficiently to retain its position for itself, such as the introduction of plugs into the rectum, or packing the roof of the vagina with sponge or lint, or distending it with a bladder or elastic bag. Cauteries and caustics have been applied to the posterior aspect of the vaginal portion of the cervix uteri and to the corresponding surface of the back wall of the vagina to bring about their cohesion; and plastic operations have been suggested for effecting the same object, under the idea that the adhesion of the cervix to the vaginal wall would tend to lift and keep up the retroverted fundus and body of the uterus. But these proposals have been almost completely eliminated from ordinary practice, and the retention of the uterus is sought to be effected by means either of vaginal or intra-uterine pessaries.

1*st. Vaginal Pessaries.*—In a large proportion of cases the uterus can be supported, and all the symptoms of distress relieved by making the patient wear a vaginal pessary. Dr. Meigs made great use of a simple ring for this purpose; but the so-called "lever" pessary proposed by Dr. Hodge of Philadelphia is greatly to be preferred. It is a ring drawn out into an elongated shape, so as to make it lie comfortably in the vagina—the two sides adapted to the lateral walls of the vagina, and keeping them gently on the stretch, while the upper extremity lies behind the cervix uteri, and is bent forward so as to keep up a constant pressure on the fundus and body. The lower extremity has a slight curve in the opposite direction, so that a lateral view of the instrument shows it to have a sigmoid shape; and the lower extremity is sometimes made open like a horse-shoe, so as to avoid pressure on the urethra. The instrument is usually made of vulcanite; and if you have applied one correctly adapted to any particular case, the patient will commonly be able to wear it for a long time without any inconvenience; and whilst it keeps the organ steadily pressed upwards it is found to present no obstacle to marital intercourse. Probably there is no kind of vaginal pessary more widely used at present for the relief of retroversion of the uterus than Professor Hodge's closed or open lever pessaries. Before they were introduced into this country I had begun to make use of the instrument which I now show you (see Fig. 139). It was invented by a patient of my own—a lady from Madeira. I had treated her for retroversion, and so far with success that, soon after returning home, she had become enceinte. Subsequently to her confinement, however, the retroversion had returned, and she had managed to procure relief for herself by introducing into the vagina this kind of loop pessary before coming back to see me. I have used it ever since in innumerable cases, and with most satisfactory results. It is made of gutta percha, which, as you know, becomes so soft when put into boiling water that it can be moulded into any form. You will make a pessary best by rolling a piece between the palms of the hands until a solid ball has been made, quite smooth, and free from all fissures and indentations on the surface. If now you make the finger and thumb meet by forcing them through the substance of it, you have a ring formed which is not liable to any solution of continuity, and which you can widen and mould with the fingers into any requisite size and conformation. During the process of manipulation the gutta percha becomes gradually firmer, and whenever you have fashioned the instrument you must put it, whilst still somewhat soft, into cold water, where, in a few minutes, it becomes firm and fit for use. Let me warn you against making your vaginal pessaries, whether for prolapsus or retroversion, of some of the specimens of gutta percha that are sold in the shops. You will sometimes be offered material that has been greatly adulterated, and which is so soft when boiled that it cannot easily be manufactured into pessaries; or the pessary softens and loses its shape with the heat of the patient's body, and so falls out, or becomes useless. Most of the sheet gutta percha is of this deteriorated kind. The best is

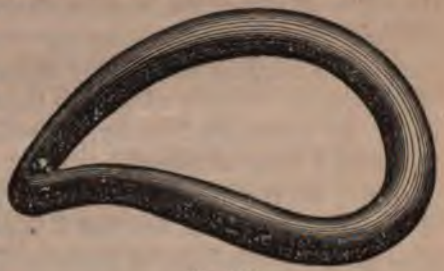


Fig. 139.

Fig. 139. Pessary for retroversion of the uterus.

sold in solid sticks, more than an inch in thickness, and though it is of a higher price, it is still so cheap that the pessary made of it is the most inexpensive variety you can employ, and it possesses the advantage of being easily made at any time to fit any particular case. The patient learns without the least difficulty to take it out for herself occasionally at bed-time, and to oil and re-introduce it in the morning. It lies with its broader extremity directed backwards to the hollow of the sacrum, and its narrow extremity, which, as you will perceive, is bent slightly but somewhat abruptly on the general plane of the loop, lies immediately in front of the fourchette of the vulva, with its concavity adapted to the mucous surface of the perineum. My friend, Dr. Priestley, of London, modified the instrument by having it made of vulcanite, and kept *in situ* by means of external supports; but if you choose good gutta percha for the manufacture of the pessary, you will find that it is elastic enough to retain its place perfectly well from the pressure of the vaginal walls, and the patient can then go on wearing it, unconscious perhaps that she has any foreign body in the vagina, except from the comfort which it affords her.

2*d*. *Intra-uterine Pessaries.*—When you have replaced the uterus by means of the sound, you cannot help wishing you could hold it there long enough to let the organ recover its tone and retain its proper set. But the question arises, Will the uterus bear the presence of a foreign body in its interior? Experience has replied that in properly selected cases the intra-uterine pessary can be worn without any drawback; and for many years before I had found a vaginal pessary that would give relief I had recourse to the use of the stem-pessary for the cure of retroversion, and in many cases still we are forced to use them where the vaginal instruments have failed. You may introduce a simple stem-pessary (see Fig. 140, *a b d*), resembling that which I recommended to you for the cure of amenorrhœa, only in this case the stem may be made of the same metal as the bulb, of copper or of german silver. Or, if you please, the

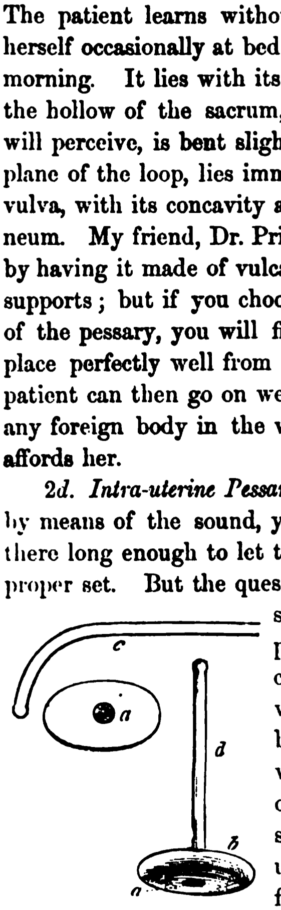


Fig. 140.

Fig. 140. Intra-uterine stem-pessary, for the cure of retroflexion. *a*, Lower or vaginal aspect of the bulb; *b*, upper surface of the bulb, on which the cervix rests; *d*, intra-uterine portion, or stem; *c*, point of the staff used to facilitate the introduction.

whole instrument may be made of vulcanite, as some gynecologists believe that the lighter material makes it more likely to remain within the uterus. It may be introduced with the fingers alone, or with the aid of the staff (*c*). In some cases it has a tendency to fall down, or in cases of long-standing retroversion the uterus may fall backwards, with the instrument in its cavity. Flexion of the uterus on itself is rectified, but the version of the entire organ may remain. I tried at one time to overcome the difficulty by adapting the stem, by means of a spring, to a metallic ring in the vagina (see Fig. 141). Now, however, I commonly introduce a small vaginal pessary under the intra-uterine one, with the good result in many cases of alike preventing the instrument falling out, and the uterus from falling backwards. It is mainly in those cases, however, where the uterus is bent on itself, whilst the cervix remains in its normal situation, that the simple stem-pessary does good. Where the whole organ inclines to fall backwards, the flexion taking place, as I have said, in the upper end of the vagina, you require to have the intra-uterine pessary and the uterus kept in position by another arrangement such as I now show you (see Fig. 142). You pass the stem *f*, of the utero-vaginal portion *f g h*, of the instrument into the cavity, *e*, of the retroverted uterus, *d*, as you do a sound, and replace it in the same way as you would replace it with the sound. You

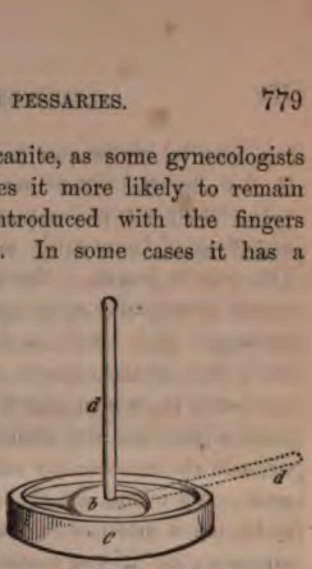


Fig. 141.

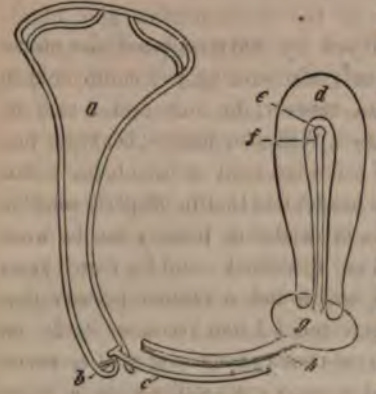


Fig. 142.

Fig. 141. Spring pessary, for retroversion.

Fig. 142. Wire-pessary for retroversion of the uterus. *d* is the outline of the uterus, in the cavity, *e*, of which lies the intra-uterine stem, *f*, of the pessary; *g* is the bulb on which the cervix uteri rests, and should have been represented as of greater relative breadth; *h* is a flattened tube which passes through the vagina, and to which there is adapted a stilet, *c*; the stilet is fixed by a wire frame, *a b*, which is adapted to the pubes.

then bend back the wire frame, *a b*, on the stilet *c*, in order to be able to slip the stilet into the tubular portion, *h*, of the utero-vaginal half of the apparatus; and finally you adapt the expanded upper extremity, *a*, of the flexible wire to the anterior surface of the pubes. It takes a sufficient hold over the mons veneris to keep the entire apparatus in its proper position; and in this way I have often succeeded, when other means had failed, to relieve the patient's symptoms. One sometimes sees a retroversion cured after the instrument has been worn for two or three weeks; in other cases not till after many months have elapsed. In some instances the retroversion returns, even when it has been worn for some years. You would only employ it where other means have failed; you would never dare to apply it where there was any inflammatory action present; and you would remove it at once on the supervention of any inflammatory symptoms. But it need not be removed during the menstrual period, for the catamenial discharge is not greatly, often not at all, increased from its presence; and dysmenorrhœa is usually in abeyance when the uterus is kept straight. Various modifications of the intra-uterine and utero-vaginal pessaries have been employed by different practitioners in England and on the Continent, but I have not been convinced that they offer any advantage over those which I have described to you.

5. *Use of the Sponge-tent.*—My excellent friend, Dr. Moir, has made an ingenious suggestion for the treatment of obstinate retroversions, which is more especially useful where the displacement is complicated with hypertrophy, and which I have several times employed with good results. You introduce a sponge or tangle tent into the cavity of the uterus, which becomes at once straightened and expanded, and the organ thus rectified is more likely, on contracting, to retain its proper situation; or, if you fear a recurrence of the displacement, you may make it contract on a stem-pessary passed into its interior. We see cure of retroversion occurring subsequently to a confinement or a miscarriage, where the position of the uterus is attended to, and the patient kept at rest; and the temporary enlargement of the uterus by means of the sponge-tent, and its subsequent involution, is thus an imitation of nature's only and but too rare method of rectifying the retroverted uterus.

INDEX.

ABDOMEN—sympathetic pain in wall of, 15 ; change in form of, in spurious pregnancy, 370.
Abscess—pelvic. See under Pelvic Cellulitis.—Of the labia pudendi, lecture on (XVII.), 286.—Secondary, in surgical fever, 312.
Acids used as caustics, 193.
Acne—symptomatic of uterine disease, 20, 617 ; treatment of, 624 ; of cervix uteri, 742.
Aconite—use of, in fever, 334.
Acupressure—use of, in ovariotomy, 504, 506.
Ægineta, Paulus—on definition of pessaries, 633.
Alkalies used as caustics, 193.
Amenorrhœa—lecture on (XXXVIII.) 597, (XXXIX.) 612, (XL.) 620, (XLI.) 632 ; from closure of vagina, 256 ; in ovarian disease, 410 ; in subperitoneal fibroids, 675 ; symptomatic of perimetritis, 738.
Amnion—dropsy of, 431.
Amputation—of cervix uteri, 169 ; mode of performing, 170 ; dangers of, 173 ; advantages of, 176—of mamma, 184 ; results of, 186—of bones of coccyx, 203—of thigh, table of mortality of, 301.
Anæmia—from disease of uterus, 22 ; in cancer, 151 ; in amenorrhœa, 609, 615 ; treatment of, 625 ; in fibroid tumours, 676 ; in polypi, 714.
Anæsthesia—superinduction of, in uterine diagnosis, 29 ; local, by freezing, etc., 157 ; use of, in spurious pregnancy, 376.
Andral—on relation between menstruation and respiration, 19, 618.
Anteversion and Anteflexion of uterus, 765.
Antiphlogistics—in pelvic cellulitis, 79 ; in pelvic peritonitis, 117 ; in hæmatocele, 132 ; in surgical fever, 321 ; in phlegmasia dolens, 360 ; in chronic metritis, 747 ; in prolapsus uteri, 758.
Antiseptics—to prevent surgical fever, 330.
Anus—fissure of, its treatment, 271 ; treatment of fistula in, with tincture of iodine, 289.
Aran—pelvic inflammation, 96 (*note*), 106.
Archigenes—on pelvic abscess, 59, 92.
Arrows—caustic, of Maisonneuve, 196 ; for interior of uterus, 749.
Arsenic—use of, as an escharotic, 194 ; use in cutaneous eruptions, 625 ; in mucous eruptions, 734.
Ascites—distinction from ovarian dropsy, 423.
Auscultation—use of, in spurious pregnancy, 374 ; fibroid tumours, 422, 681.
Asthma in disease of uterus, 19 ; cases of asthma uterinum, 618 ; treatment of, 621.
Atlee—on gastrotomy, 696.
Aveling—on removal of intra-uterine polypi, 726.

BAILLIE—on fibroid tumour of the cervix, 666.
Bainbridge—treatment of ovarian dropsy, 457.
Bartholini, glands of—inflammation in, 286.
Bayle—statistics of fibroid tumours, 659.
Becquerel—case of Fallopian tube dropsy, 551.
Belladonna—use of, in pelvic cellulitis, 83.
Bellini—operation for cure of prolapsus uteri, 762.
Bernutz—on pelvic peritonitis, 94 ; on hematocele, 126.
Bismuth, application of, to uterus, 750.
Blackhall—case of albuminuria, 561.
Bladder—functional derangement of, in uterine disease, 11, 17 ; fistula, 30 ; affection of, in pelvic cellulitis, 70 ; cancer of, 144 ; distension of, mistaken for ovarian dropsy, 435 ; interference with, by fibroids, 677 ; displacement of, in prolapsus uteri, 753 ; interference with functions of, in retroversion of uterus, 769.
Blood—effusions of, in pelvis, 121 ; poisoning of, in surgical fever, 309 ; in puerperal fever, 324 ; measures to correct

poisoning of, 329 ; in phlegmasia dolens, 344.
Blood-letting—in pelvic inflammation, 79 ; in chronic metritis, 747.
Blundell—treatment of ovarian dropsy, 457.
Bonnet—on pus in Fallopian tube, 546.
Boyer—on excision of mamma, 184 ; the treatment of fissure, 272.
Bozeman—operation for vesico-vaginal fistula, 49.
Bright—on ovarian tumours, 629.
Bristowe—on pathology of fibroid tumours, 663.
Broad ligament—inflammation in, 59 ; hematoma in, 127.
Brodie—on use of caustics, 190.
Bromide. See under Potassium, 242.
Brown, Baker—knife for vesico-vaginal fistula, 42 ; application of pressure to ovarian tumours, 443 ; operation for ruptured perineum, 653.
Brünninghausen—midwifery forceps of, 527.
Burdach—on vicarious respiration, 618.
Burns—on vaginismus, 284 ; on phlegmasia dolens, 343.

CÆSAREAN operation—cases requiring, 513.
Camphor—use of, in dysmenorrhœa, 236.
Cancer. See under Carcinoma.
Canquoin—his caustic, 194.
Carbonic acid—application to vagina, 157 ; inhalation of, in asthma, 691.
Carcinoma—of uterus, reflex pain from, 13 ; causing fistula, 33 ; simulated by cellulitis, 65 ; lecture on (VIII.), 140, (IX.) 155, (X.) 168, (XI.) 183 ; fatality of, 140 ; differential diagnosis from leucorrhœa, 732 ; differential diagnosis from simple ulcers, 745 ; differential diagnosis from retroversion of the uterus, 773.—Of ovary, 399.—Of Fallopian tubes, 541.
Caruncles, urethral—sympathetic pain in, 13 ; lecture on (XVI.), 273.
Catheter, sigmoid, for vesico-vaginal fistula, 53.
Cauliflower excrescence—nature of, 149 ; intra-uterine, 431 ; appearance of, 710.
Caustics—use of, in carcinoma, 183 ; are they preferable to knife? 187 ; varieties of, 193 ; injection of, into tumours, 197; application of, to interior of uterus, 244, 740 ; use of, in fibroids, 702 ; in mucous polypi, 727; application of, to cervix uteri, 748.
Cautery—use of, in vesico-vaginal fistula, 35 ; use of, for urethral caruncles, 282 ; application to uterine polypi, 727 ; use of, in retroversion of the uterus, 776.
Cellulitis, pelvic—lecture on (IV.) 59, (V.) 79 ; distinction from hematocele, 131 ; distinction from fibroid tumours, 687 ; distinction from retroversion, 773.
Cephalotripsy—in obstructed labour, 513.
Cerium—oxalate of, as an anti-emetic, 391.
Cervix uteri—ulceration of, causing vaginal pain, 16 ; cancer of, 143 ; chronic inflammation of, distinguished from cancer, 152, 745 ; amputation of, 169 ; risks of amputation, 173 ; ulceration of, treated with sulphate of zinc, 202 ; inflammation of, causing dysmenorrhœa, 229 ; contraction of, causing dysmenorrhœa, 234 ; dilatation of canal, 245 : division of, in dysmenorrhœa, 253 ; amputation of, followed by spurious pregnancy, 380 ; division of, in fibroids, 703 ; chronic inflammation of, lecture (XLVIII.) on, 741 ; elongation of, 753 : amputation of elongated, 762.
Chassaignac—his écraseur, 171.
Chevers—on causes of death after operations, 302.
Chloric ether—in dysmenorrhœa, 236.
Chloroform—liniment, 83 ; local application of vapour to uterus, 157 ; inhalation of, in cancer, 160 ; use of, in dysmenorrhœa, 236 ; local application to skin, 240 ; use of, in peritonitis, 335 ; administration of, in spurious pregnancy, 376 ; use of, in puerperal mania, 578.
Churchill—on pelvic cellulitis, 60.
Clamp for securing ovarian pedicle, 505.
Clarke, Sir Charles — case of fibroid tumour, 691.
Clavus hystericus in uterine disease, 16.
Clay—on ovariotomy, 485.
Coccygodynia—lecture on (XII.), 202.
Coccyx—pain of, 202 ; anatomy of, 207 : injuries of, in labour, 213 ; surgical injuries of, 215 ; malformations of, 216 ; deficient development of, 217 ; tumours of, 218.
Coghill—metallic suture-twister, 51.
Collapse—after pelvic operations, 174.
Collins—statistics of forceps and craniotomy, 516, 518 ; on frequency of cellulitis, 767.
Colloid tumours of ovary, 398.
Conium—in pelvic peritonitis, 120.
Convulsions — relation of puerperal, to mania, 564.
Cook—on dilatation of the uterus, 246.
Cooper, Sir Astley—diagnosis of suppuration, 71.
Copeland—on the treatment of fissure, 272.
Cranioclasm—lecture (XXXIII.), 510: first case with Dr. Burns, 531 ; experiments with, 532 ; illustrative cases, 533.

Craniotomy—in obstructed labour, 512.
Cruveilhier—on peritonitis from pelvic abscess, 68 ; on fibroid tumour undergoing spontaneous enucleation, 672 ; proposal for extirpation of uterus, 762.
Cystocele—distinction from prolapsus uteri, 756.

DAVIS—on incurability of vesico-vaginal fistula, 34 ; on phlegmasia dolens, 342.
Decidua—dysmenorrhœal membrane resembling, 232.
Desault — curability of vesico-vaginal fistula, 35.
Dewees—on carbonic acid gas, 158.
Diagnosis — lecture (I.) on uterine, 1 ; surgical, 6 ; medical, 7 ; means of physical, 28 ; of vesico-vaginal fistula, 33 ; of pelvic cellulitis, 69 ; of pelvic peritonitis, 112 ; of hematocele, 129 ; of carcinoma, 152, 745 ; of dysmenorrhœa, 235 ; differential, in ovarian tumours, 415 ; of Fallopian tube dropsy, 547 ; differential, of, 548 ; of sub-involution, 590 ; of superinvolution, 602 ; of fibroid tumours, 684 ; of vaginal and intra-uterine polypi, 716 ; of ulcerations of cervix, 744 ; of prolapsus uteri, 757 ; of retroversion, 770.
Dieffenbach—use of metallic sutures, 38.
Diet preparatory to operations, 321 ; in chronic metritis, 746.
Discutients—use of, in hematocele, 134 ; use of, in fibroid tumours of the uterus, 691.
Docherty—on pelvic cellulitis, 60.
Dropsy—of ovary, lecture on (XXV.) 394, (XXVI.) 409, (XXVII.) 429, (XXVIII.) 443, (XXIX.) 451, (XXX.) 463, (XXXI.) 483—of uterus, 431—of Fallopian tube (XXXIV.), 539.
Drugs — pleasant, administration of, in amenorrhœa, 628.
Dupuytren — on amputation of cervix uteri, 169 ; case of spurious pregnancy, 381 ; on excision of polypi, 724.
Dyce—on excision of polypi, 724.
Dynamical symptoms of uterine disease, 9 ; in neighbouring organs, 11 ; value of, 23.
Dysmenorrhœa—lecture on (XIII.) 225, (XIV.) 239 ; in occlusion of vagina, 264 ; membranous, 364 ; in disease of ovary, 411 ; in fibroid tumours, 675 ; from chronic endometritis, 737, 739 ; from cervicitis, 743 ; in retroversion of uterus, 769.
Dysuria—in uterine disease, 11 ; in pelvic cellulitis, 70 ; in pelvic peritonitis, 191 ; relief of, 162 ; in ovarian disease, 412 ; in ulceration of cervix, 744 ; in prolapsus uteri, 753.

ÉCRASEUR—amputation of cervix uteri with, 171 ; amputation of polypi with, 725.
Elytroraphy for cure of prolapsus uteri, 760.
Embolism—a cause of secondary abscesses, 312.
Endometritis—cause of pelvic peritonitis, 106 ; chronic, 736. See under Metritis.
Enucleation—spontaneous, of fibroid tumours, 672 ; artificial, of fibroid tumours, 696.
Episioraphy — description of operation, 653 ; for prolapsus uteri, 760.
Eruptions—of skin, in uterine disease, 20, 617 ; treatment of, 624 — in genital canals, 730 ; on cervix uteri, 741 ; of cervix uteri, 741.
Escharotics. See Caustics.
Esquirol — table of date of attack of puerperal mania, 557.
Exploring-needle—use in uterine diagnosis, 29 ; use in pelvic cellulitis, 72 ; in hematocele, 131.
Eye—diagnosis of disease of, 6.

FALLOPIAN TUBE—hemorrhage from inflammation of, 107, 126 ; dropsy of, lecture on (XXXIV.), 539 ; inflammation of, 542 ; hemorrhage into, 543 ; dropsy of, 543 ; causes of dropsy of, 544 ; treatment of dropsy of, 553 ; tapping in dropsy of, 553.
Farre—on cancer of uterus, 147.
Fell—use of caustics, 195.
Fever—inflammatory, in pelvic cellulitis, 69 ; hectic, in pelvic cellulitis, 71 ; in pelvic peritonitis, 101 ; surgical, after amputation of cervix uteri, 176 ; surgical, lecture on (XVIII.) 296, (XIX.) 308, (XX.) 319 ; similarity of puerperal to surgical fever, 304 ; danger of, in the puerperal woman, 324.
Fibroid tumours — variability of symptoms, 25 ; differential diagnosis from ovarian tumours, 420 ; of Fallopian tubes, 540 ; lecture on (XLIII.) 659, (XLIV.) 670, (XLV.) 683 ; distinction from retroversion of the uterus, 773.
Fistula — vesico-vaginal, lecture on (II.) 30, (III.) 40 ; vesico-uterine, 33, 67 ; tincture of iodine injections in, 91 ; from cancer, 144 ; in vulva, 288.
Fluor albus. See under Leucorrhœa.
Fock—on mortality after tapping, 449.
Forceps in obstructed labour, 511.
Francis — on silver sutures for vesico-vaginal fistula, 57.
Frerichs — opinion regarding puerpera convulsions, 565.
Functions of uterus—derangements of, in uterine disease, 9 ; in disease of ovary, 410.

Fundus uteri. See under Uterus.

GALVANISM—use of, in late stages of phlegmasia dolens, 362; use of, in ovarian tumours, 481; use of, in amenorrhœa, 647.

Galvano-cauter—use of, in fistula, 32; amputation of cervix uteri with, 173; use of, in urethral caruncles, 282; amputation of polypi with, 725.

GARRATT—on electricity and galvanism, 640.

Gastrotomy—in fibroid tumours of uterus, 695.

Gonorrhœa causing pelvic peritonitis, 111.

GOOCH—on puerperal mania, 571; on diagnosis of polypi from inverted uterus, 717; his treatment of polypi, 723.

GOOD—on pseudocyesis, 362, 366.

GORDON—case of fibroid tumour of Fallopian tube, 540.

GOSSETT—operation for vesico-vaginal fistula, 55.

Gout—causing dysmenorrhœa, 229; treatment of gouty dysmenorrhœa, 242.

GREGORY—on the disputes between Benjamin and John Bell, 300.

GUERIN—treatment of ovarian dropsy, 457.

Gutta-percha—manufacture of pessaries from, 777.

HALL, MARSHALL—on iron as an emmenagogue, 626; radical cure of prolapsus uteri, 760.

HAMILTON—incurability of vesico-vaginal fistula, 34; case of spurious pregnancy, 368; medical treatment of ovarian disease, 438; case of craniotomy, 525; on retroversion of the unimpregnated uterus, 767.

HARDER—on dropsy of the Fallopian tube, 546.

HARVEY—on spurious pregnancy in bitches, 367.

Heart—sympathetic affection in pregnancy, 18.

Hematocele—differential diagnosis from pelvic peritonitis, 115; lecture on (VII.), 121; distinction from retroversion of the uterus, 773.

Hematoma—peri-uterine, see under Hematocele—of vagina, 136.

Hemorrhage—after ovariotomy, 509; in fibroids, means of checking, 702; in uterine polypi, 714.

Hemorrhoids—case of, cured by perchloride of iron, 164.

Hemostatics—use of, in hematocele, 132.

Hernia—mistaken for abscess, 73; mortality after operation for, 302.

Herpes—of labia, 289; of os uteri, 742.

HEYERDAHL—on pelvic cellulitis, 108.

HODGE—his lever pessaries, 776.

HOOPER—on inflammation of Fallopian tubes, 544; case of Fallopian tube dropsy, 545.

Hospitals—development of surgical fever in, 325.

HUGUIER—on inflammation of Bartholini's glands, 287.

Hydatids—distinction of, from ovarian disease, 426.

Hydrocele—treatment of, with iron wire, 466.

Hydrometra — distinction from ovarian dropsy, 431.

Hydronephrosis—in carcinoma uteri, 144.

Hymen—imperforate, 262.

Hypertrophy of uterus—see under Subinvolution; from inflammation, 737; of cervix uteri, 743.

Hypochondriasis, puerperal, 582; tincture of actea in, 582.

Hysterotomy—in dysmenorrhœa and sterility, 253; in fibroid tumours of the uterus, 703.

INFLAMMATION—chronic, of uterus, 736. See under Metritis.

INGLEBY—opinions regarding puerperal convulsions, 565.

Injections—intra-uterine, dangers of, 245; vaginal, 734; use of intra-uterine, in chronic metritis, 740.

Insanity—in uterine disease, 20. See under Mania.

Intestines—functional derangements of, in uterine disease, 17; fæcal collections in, 427; displacement of, in prolapsus uteri, 754.

Inversion of uterus—mode of production, 717; symptoms, 717; distinction from fibroid tumours, 718; distinction from prolapsus uteri, 757.

Iodine—injection of tincture of, in fistula, 91; in abscesses, 92; in fistula, 289; in ovarian dropsy, 463; use of, in ulceration of cervix, 748.

Iron—perchloride of, as a hemostatic, 164; injection of perchloride of, into tumours, 198; use of perchloride of, as an escharotic, 200; use of, in neuralgia, 241; muriate of, as a prophylactic against surgical fever, 324; internal administration of, 389; saturated solution of perchloride of, in glycerine, 702; use of perchloride of, in ulceration of cervix, 748.

JACOB—on coccygeal tumours, 217.

JOBERT—operation for vesico-vaginal fistula, 36.

Joints, sympathetic pains in, 15 ; Young's case of loose cartilage in knee, 320.

KEILLER—case of spurious pregnancy, 369 ; case of cranioclasm, 534.
Kidneys—distension of, in carcinoma uteri, 144 ; movable, mistaken for ovarian dropsy, 434.
Kilian—cephalotribe, 523.
Kiwisch—on phlegmasia dolens, 343 ; on mortality after tapping, 450.
Knee-joint, reflex pain in, 16.

LABATT—case of spurious pregnancy, 368.
Labour—tedious, as a cause of fistula, 32 ; complicated with hematoma vaginæ, 137 ; condition of os uteri after, 252 ; followed by occlusion of the vagina, 257 ; rules for management of, in contraction of vagina, 267 ; obstructed, modes of delivery in, 510 ; injuries of coccyx in, 213 ; premature induction of, 514 ; inversion of uterus after, 717 ; effects of chronic metritis on, 738 ; retroversion of uterus after, 766.
Laceration of perineum, lecture (XLII.) on, 644.
Lallemande—operation for vesico-vaginal fistula, 36 ; pelvic hematocele, 126 ; porte-caustique, 244.
Landolphi—use of chloride of bromine, 194.
Langenbeck—extirpation of uterus, 763.
Laugier—operation for vesico-vaginal fistula, 36.
Lee—on phlegmasia dolens, 342 ; on use of speculum in displacements, 770.
Leeches—application to uterus, 80 ; in chronic metritis, 747.
Leucorrhœa—a symptom of uterine disease, 10 ; in pelvic peritonitis, 101 ; in cancer, 151 ; treatment of cancerous, 165 ; results of, in children, 259 ; infantile, 291 ; in fibroid tumours, 676 ; in polypi, 714 ; lecture on (XLVII.), 728 ; symptomatic of endometritis, 738 ; in disease of cervix, 744.
Lever—on puerperal mania, 562.
Ligature—application of, to urethral caruncles, 281 ; of arteries, mortality from, 302, 495 ; of polypi, 723.
Lisfranc—on amputation of cervix uteri, 169.
Liver—derangements of, in uterine disease, 18 ; enlargement of, mistaken for ovarian tumour, 432.
Lizars—cases of ovariotomy, 485.
Lochia—suppression of, in phlegmasia, 343.
Locock—use of bromide of potassium, 692 ; treatment of mucous polypi, 727.
Loins—sympathetic pains in, 15.

MACFARLANE—on excision of mamma, 184.
Mackintosh—his leeching-tubes, 81 ; on obstructive dysmenorrhœa, 233 ; his uterine dilators, 245.
M'Clintock—on pelvic cellulitis, 63 (*note*), 75 ; on frequency of cellulitis, 767.
M'Dowell, Ephraim—on ovariotomy, 485.
Maisonneuve—his caustic arrows, 196.
Mamma—sympathetic pains in, from uterine disease, 14 ; carcinoma of, 183 ; changes of, in spurious pregnancy, 370.
Mania, puerperal—lecture on (XXXV.) 555, (XXXVI.) 570 ; case of, 555 ; period of occurrence, 556 ; Esquirol's table, 557 ; etiology of, 557 ; pathology of, 558 ; chloroform in, 560 ; connection with albuminuria, 561 ; propositions regarding its connection with albuminuria, 563 ; in first deliveries, 566 ; symptoms of, 568 ; dangers in, 570 ; pulse in, 570 ; treatment of, 572 ; ancient hospitals for, 573 ; ancient treatment of, 574 ; bleeding in, 575 ; vascular sedatives, 575 ; opium in, 577 ; chloroform in, 578 ; depurants in, 579 ; restraint in, 581.
Marchal de Calvi—on pelvic cellulitis, 59.
Marshall—on galvano-cauterisation, 173.
Mayo—on excision of mamma, 184.
Meckel—on double monsters, 220.
Medullary cancer. See under Carcinoma.
Meigs—mortality after tapping, 450 ; his ring for displacement of uterus, 776.
Meissner—operation of Fallopian tube dropsy, 552.
Menorrhagia—symptom of disease, 10 ; in cancer, 150 ; means of arresting, 163 ; case of, 202 ; symptomatic of fibroid tumours, 676 ; treatment of, 701 ; symptomatic of polypi, 714 ; in chronic metritis, 738 ; from cervicitis, 744 ; in retroversion of uterus, 769.
Menstruation—aggravation of symptoms of uterine disease during, 21 ; pelvic inflammation from arrested, 109 ; formation of hematocele during, 127 ; painful (see under Dysmenorrhœa), 225 ; alteration during spurious pregnancy, 364 ; disturbance of, in ovarian dropsy, 416 ; disturbance of, in fibroid tumours of uterus, 675 ; disturbance of, in chronic metritis, 738, 743 ; disturbance of, in retroversion of uterus, 769.
Mercury—use in inflammation, 82 ; pernitrate of, as an escharotic, 194 ; pessaries of, in membranous dysmenorrhœa, 243 ; in ovarian tumours, 438.
Metritis—a cause of subinvolution, 589 ; lecture (XLVIII.) on chronic, 736 ;

parenchymatous, 737; a cause of retroversion, 766.

Metrorrhagia—in pelvic peritonitis, 103; in fibroid tumours, 676; in uterine polypi, 714.

Metrotome, figure and description of, 254.

Mettauer—use of metallic sutures, 38, 49.

Middeldorpf—his galvano-cauter, 173.

Mineral springs—use of, in treatment of fibroid tumours, 692; in chronic metritis, 740.

Moir—case of ruptured perineum, 651; his treatment of retroversion of the uterus, 780.

Mojon—on carbonic acid gas as an anæsthetic, 237.

Monboddo—his fancy about human tails, 207.

Monstrosity—by inclusion, 218.

Montgomery—on spurious pregnancy, 365.

Murphy—scissor-pointed craniotomy forceps, 527.

Myomata or muscle-tumours, 663 (see under Fibroid Tumours).

NAEGELE—operation for vesico-vaginal fistula, 36; his perforator compared with Smellie's, 526.

Nelaton—on pelvic hematocele, 126.

Nervous system—sympathetic affections of, in uterine disease, 20.

Neuralgia—ovarian, 227; uterine, 228; treatment of, 241; of vulva, 284.

Neuromata—of vulva, 283.

Noma—its nature and treatment, 293.

Nonat—on pelvic inflammation, 95.

OLDHAM—on ovarian pain, 228.

Omentum—disease of, distinguished from ovarian tumour, 426.

Opium—use of, in pelvic cellulitis, 83; use of, in dysmenorrhœa, 236; use of, in surgical fever, 322; in spurious pregnancy, 387; in puerperal mania, 577.

Osiander—on amputation of cervix uteri, 169.

Ovariotomy—lecture on (XXXI.), 483; (XXXII.), 497; cases requiring, 497; mode of operation, 500; Spencer Wells' operating table, 501; operation, stages of, 502; incision, evacuation of cyst, 503; separations of adhesions, 503; management of pedicle, 504; mode of securing, 504; acupressure in, 506.

Ovary—inflammation of, 106; case of inflammation, 109; dysmenorrhœa from affections of, 227; treatment of inflammation of, 241; dropsy of, death after tapping for, 297; disease of, confounded with spurious pregnancy, 365; disease of, causing spurious pregnancy, 381; structure of, 395; displacement of, 413; dropsy of, lecture on (XXV.) 394, (XXVI.) 409, (XXVII.) 429, (XXVIII.) 443, (XXIX.) 451, (XXX.) 463, (XXXI.) 483, (XXXII.) 497: distinction of tumours of, from fibroid tumours, 685; distinction of tumours of, from retroversion of uterus, 773.

PAGET—on cancer, 147; on pathology of fibroid tumours, 662.

Pain—sympathetic in uterine disease, 12; in pelvic cellulitis, 69; of cancer, 149; of cancer, means of relieving, 156; in the coccyx, 203; during menstruation (see under Dysmenorrhœa), cause of, 234; in phlegmasia dolens, 341; in fibroid tumours, 677; in chronic metritis, 737, 739; in cervicitis, 744.

Palpitation—sympathetic of uterine disease, 18.

Paracentesis. See under Tapping.

Paralysis—local, from uterine disease, 20.

Parametritis (see under Pelvic cellulitis), 59; origin of name, 94 (*note*).

Parturition. See under Labour.

Pedicle—management of, in ovariotomy, 504; écraseur for dividing, 505; clamp for securing, 505.

Pelvic abscess. See under Pelvic cellulitis. From cancer, 144.

Pelvic cellulitis—lecture on (IV.) 59, (V.) 79; distinction from retroversion of uterus, 773.

Pelvic hematocele, or hematoma—lecture on (VII.), 121.

Pelvic peritonitis—lecture on (VI.), 94; distinction from retroversion of the uterus, 773.

Pereira—on carbonic acid gas, 158.

Perimetritis. See under Pelvic peritonitis. Chronic, 736.

Perineum—rupture of, lecture (XLIII.) on, 644; operation on, in prolapsus uteri, 760.

Peritoneum—injury of, in amputation of cervix uteri, 175; ovarian tumour opening into, 456.

Peritonitis. See under Pelvic peritonitis—simulated, 15; use of chloroform in, 335.

Pessary—intra-uterine, use of, in amenorrhœa, 19, 637; fistula from use of vaginal, 32; medicated—in pelvic cellulitis, 84; in hematocele, 134; nature and use in pain of cancer, 156; in cancerous leucorrhœa, 165; use of intra-uterine, in dysmenorrhœa, 250; in amenorrhœa, 633; method of introduction of intra-uterine, 637; galvanic, 643; use of medicated, in ulceration of cervix,

748 ; vaginal, for prolapsus uteri, 759 ; vaginal, use of, in retroversion of uterus, 774 ; how to be made of gutta percha, 777 ; intra-uterine, varieties of, for cure of retroversion, 778.
Phlebitis. See under Phlegmasia.
Phlegmasia dolens, lecture on (XXI.), 339 ; (XXII.), 352.
Phlegmon—peri-uterine, 59.
Physical diagnosis—means of, 28.
Piles—case of, cured by perchloride of iron, 164.
Pills—coating of, 629.
Placenta prævia—cause of, 738.
Polypi—of the uterus, lecture (XLVI.) on, 704 ; treatment of, lecture (XLVII.) on, 722 ; distinction from prolapsus uteri, 757.
Polyptome—description of, 724.
Potassa fusa—as a caustic, 193 ; application to cervix uteri in cancer, 199 ; application in cases of cervicitis, 749.
Potassium, bromide of—use of, in dysmenorrhœa, 242 ; in spurious pregnancy, 385 ; in fibroid tumours, 692 ; observations of Sir Charles Locock on, 692 ; dose of, in fibroid tumours, 693.
Pott—case of excision of ovaries, 484.
Pregnancy—variability of symptoms, 24 ; Spurious, lecture on (XXIII.) 363, (XXIV.) 379 ; distinction from ovarian dropsy, 418 ; distinction from fibroid tumours, 683 ; distinction from retroversion of uterus, 772; extra-uterine, distinction from retroversion of uterus, 773.
Priestley—his retroversion pessary, 778.
Procidentia. See under Prolapsus uteri.
Progression—impaired power of, in retroversion of uterus, 763, 770.
Prolapsus uteri—lecture (XLIX.) on, 751.
Prophylaxis—against surgical fever, 322, 327.
Prostate—its analogue in the female, 280.
Prurigo—nature and treatment, 294.
Pseudocyesis. See Pregnancy, Spurious.
Pudenda—varix of, 137 ; abscess of labia, lecture on (XVII.), 286 ; cysts in labia, 286 ; partial closure of, for cure of prolapsus uteri, 760.
Puerperal convulsion. See under Convulsions.
Puerperal fever—distinction from peritonitis, 106 ; analogy with surgical fever, 302 ; organs affected during, 304 ; due to scarlatina, etc., 324 ; contagiousness of, 327.
Puerperal hypochondriasis. See under Hypochondriasis.
Puerperal mania. See under Mania.
Puerperal pelvic inflammation, 63 ; case of, 99.
Pyæmia—after surgical operations, 310.
QUEVENNE—on the effects of iron, 627.

RAMSBOTHAM—on dilatation of occluded vagina, 265.
Rational symptoms of uterine disease, 9 ; value of, 23.
Rayer—experiments of, on calcification of fibrous tissues, 695.
Recamier—his curette, 702.
Rectum—deranged functions of, in uterine disease, 11 ; in pelvic cellulitis, 70 ; cancer of, 144 ; derangement of functions of, in fibroid tumours, 677 ; displacement of, in prolapsus uteri, 753, 757 ; interference with functions of, in retroversion of uterus, 770 ; disease of, distinguished from retroversion, 773.
Reid—on mortality of excision of mamma, 187 ; on structure of urethral caruncles, 276.
Respiration—derangement of, in uterine disease, 19.
Retroversion of uterus—differential diagnosis from ovarian dropsy, 417 ; differential diagnosis from fibroid tumours, 687 ; lecture (L.) on, 764.
Rheumatism — causing dysmenorrhœa, 229 ; treatment of, 242.
Rigby—on the treatment of retroversion of the uterus, 774.
Roberton—on amenorrhœa, 608.
Rokitansky—on cancer of uterus, 147.
Roonhuyse—cure of vesico-vaginal fistula, 35.
Roux—on mortality of excision of mamma, 187.
Rupture of perineum—recent treatment of, 651 ; different opinion regarding treatment of, 650 ; operation for restoration of, 653.
Ruspini's styptic, use of, in menorrhagia, 694.

SALIVATION—in uterine disease, 21.
Scanzoni—fatty degeneration of uterus in pelvic peritonitis, 97 ; on vaginal tapping of ovarian tumours, 465 ; cephalotribe of, 537.
Scirrhus. See under Carcinoma.
Season—influence of, on mortality of operations, 326.
Seymour—on puerperal hypochondriasis, 583.
Sidey—case of perforation of head, 538.
Sigaultian operation, 512.
Silver—nitrate of, as a local emmenagogue, 634 ; oxide of, in fibroids, 694 ; application of nitrate to interior of uterus, 740.
Simon—operation for vesico-vaginal fistula, 36.
Sims, Marion—operation for vesico-vaginal fistula, use of metallic sutures in,

37, 55, 505 ; his speculum, 41 ; radical cure of prolapsus uteri, 761.
Skin — sympathetic affections of, 20 ; eruption on, during pregnancy, 373.
Smellie—perforator compared with Naegele's, 526.
Smith, Tyler—on craniotomy, 514.
Sound, uterine—use of, for diagnosis, 28 ; use in diagnosis of ovarian tumours, 422 ; use in tapping ovarian cyst, 455 ; in subinvolution of uterus, 592 ; use of, in fibroid tumours, 679, 681 ; use of, in polypi, 717 ; use of, in chronic metritis, 739 ; use of, in prolapsus uteri, 756, 757 ; figure of, 771 ; use of, in diagnosis of retroversion, 771; use of, in treatment of retroversion, 775.
Speculum—use in diagnosis, 28 ; duck-bill, 40, 716 ; Cusco's, 716 ; use of, in chronic metritis, 739 ; Dr. Lee on use of, in displacements of uterus, 770.
Spleen — tumour of, distinguished from ovarian tumour, 433.
Sponge-tent—use of, in diagnosis, 29 ; in vesico-uterine fistula, 34 ; in intra-uterine cancer, 146 ; ancient use of, 246 ; use of, in dysmenorrhœa, 251 ; use of, in fibroid tumour, 698 ; use of, in intra-uterine polypi, 718 ; methods of preparation and introduction, 719 ; dangers attendant on use of, 720 ; compression of mucous polypi with, 722 ; use of, in chronic metritis, 741 ; use of, in retroversion, 778.
Spurious pregnancy. See under Pregnancy.
Startin—his hollow needle for metallic sutures, 45.
Stearoid tumours of ovary, 399.
Stem-pessaries. See under Pessaries, intra-uterine.
Sterility—as a sign of uterine disease, 9 ; from stricture of os uteri, 251 ; in general and in ovarian disease, 411 ; in fibroid tumours of the uterus, 678 ; in chronic metritis, 738 ; from displacements of the uterus, 769.
Stimulants—use of, in surgical fever, 337.
Stricture—of os and cervix uteri, 234 ; treatment of, by bougies, 248 ; by intra-uterine pessaries, 250 ; by incisions, 252.—Of vagina, 256.—Of rectum, distinguished from retroversion of uterus, 774.
Subinvolution of uterus after delivery—lecture on (XXXVII.), 585 ; cases of, 585 ; pathology, 587 ; etiology, 588 ; semeiology, 589 ; physical diagnosis of, 590 ; duration of, 592 ; hypertrophy of uterus in, 593 ; treatment, 593.
Sulphuric acid—as a caustic, 183, 194.
Super-involution of uterus, 597 ; case of, 598 ; causes of, 601 ; diagnosis of, 602.
Suppuration in pelvic cellulitis, 66 ; secondary, in surgical fever, 312.
Surgical fever—after amputation of cervix, 176 ; lectures on, (XVIII.) 296, (XIX.) 308, (XX.) 319.
Sutures—use of metallic, 36.
Syncope—fatal, after pelvic operations, 174.

TAIL—child born with supposed, 218.
Tannin—local use of, in menorrhagia, 164.
Tapping—in ovarian dropsy, 444 ; in Fallopian tube dropsy, 553.
Teal—treatment of recent wounds, 650.
Tent. See under Sponge-tent.
Thomas, Gaillard—on pelvic inflammations, 112.
Thrombus—pelvic, 125 ; vaginal, 136.
Thyroid gland — enlargement in uterine affections, 21.
Tonsillotome—use of, for excision of polypi, 725.
Toothache—sympathetic in pregnancy and uterine disease, 16.
Toxæmia—cause of surgical fever, 309 ; measures for combating, 329 ; in phlegmasia dolens, 344 ; in puerperal mania, 559.
Tuberculosis—of Fallopian tubes, 542.
Tumours. See under Ovary, Fibroid, Uterus, etc.
Turning—in obstructed labour, 512.
Tympanitis—in uterine disease, 15 ; in spurious pregnancy, 375 ; treatment of, 392 · distinction from ovarian tumour, 426.

ULCER—corroding, 149 ; chronic, of cervix uteri, 16, 742 ; differential diagnosis of simple from cancerous, 745 ; of stomach, diet in, 746 ; occurring on prolapsed uterus, 754.
Urethra, painful caruncles of, 13, 16 ; lecture (XVI.) on, 273.
Urine—alterations of, in pregnancy and uterine disease, 17.
Uterus. See under Cervix.—Diagnosis of disease of, 1 ; irritable, 26 ; leeching of, 80, 747 ; displacements of, in pelvic peritonitis, 102 ; displacement of, in hematocele, 129 ; cancer of, 140 ; extirpation of, in cancer, 168 ; application of caustics to, 185 ; neuralgia of, 228 ; rheumatism of, 229 ; membranous casts of, 230 ; contraction of os, 234 ; dilatation of os, 245 ; condition of os before and after labour, 252 ; incision of cervix, 253 ; coagulation in veins of, after delivery, 356 ; disease of, causing spurious pregnancy, 380 ; distinction of

retroverted, from ovarian tumour, 417; gravid, distinguished from ovarian dropsy, 418; fibroid tumours of, 420 (see Fibroid); dropsy of, 431; subinvolution of, 585; superinvolution of, 597; atrophy of, 597; physical changes of, in amenorrhœa, 613; dry cupping the interior of, method of, 635; undersized, 641; inflammatory hypertrophy of, 737; applications to interior of, 740; prolapse of, lecture (XLIX.) on, 751; increased weight of, leading to prolapsus, 754; inversion of, 717, 757; extirpation of, in prolapsus, 762; retroversion of, lecture (L.) on, 764; normal position of, 764; anteversion of, 765; relaxation of ligaments of, 766; hypertrophy of, in retroversion, 766; frequency of displacements of, 767.

VAGINA—closures and contractions of, lecture on (XV.), 256; fissures of the orifice, 270; leucorrhœal discharge from, 729; artificial narrowing of, in prolapsus uteri, 761.
Vaginismus—nature and treatment, 284.
Vaginitis—causing occlusion of canal, 259; causing leucorrhœa, 729; treatment of, 733.
Varix—pudendal, 137.
Veins—condition of, in phlegmasia dolens, 342; obstruction of, in phlegmasia dolens, 352.
VELPEAU—on excision of mamma, 185; on injections of iodine into ovarian tumours, 468.
Veratrum viride—use of, in surgical fever, 334.
Version—podalic, in obstructed labour, 512.
Vesico-vaginal fistula—lecture on, (II.) 30, (III.) 40; from cancer, 144.
VIDAL—incurability of vesico-vaginal fistula, 34.
VIRCHOW—on epithelial disease of cervix uteri, 147, 181; on leucocythosis. 311; on embolism, 313; on pathology of fibroid tumours, 663.
VOGEL—on pathology of fibroid tumours, 662.
Vomiting—in pelvic peritonitis, 101; treatment of, 118; in spurious pregnancy, 387.
Vulva—occlusion of, in children, 260; neuromata of, 283; neuralgia of, 284; fistula of, 288; various forms of vulvitis, 290; vulvitis causing leucorrhœa, 729; artificial contraction of, in prolapsus uteri, 760.

WALSHE—on cancer, 192.
WARDROP—on value of bloodletting, 325.
WEDL—on structure of urethral caruncles, 275.
WEIR, GRAHAM—on intra-uterine pessaries, 640; vaginal pessaries, 762.
WELLS, SPENCER—amputation of cervix uteri, 172; on ovariotomy, 489; ovariotomy table, 501; ovariotomy clamp, 505.
Whites. See under Leucorrhœa.
WILSON—case of coccygeal tumour, 217.
Wire—for sutures, 36; in abscesses, 92; in fistula, 289; in hydrocele, 466; in ovariotomy, 505.
WISE—on consolidation of blood, 312.
Womb-stones. See Fibroid tumours, 674.
WUTZER—operation for vesico-vaginal fistula, 36.

YOUNG—on preparation of patients for operation, 320.

ZIEGLER—on galvanism in amenorrhœa, 641.
Zinc—dried sulphate of, as a caustic, 183, 194; mode of application to uterus, 199; chloride of, as a caustic, 194, 195; case of malignant ulcer of cervix cured by, 202; application of dried sulphate to interior of canal of cervix, 749.

THE END.

MEDICAL WORKS

PUBLISHED BY

D. APPLETON & COMPANY.

Barker on Sea-Sickness. 1 vol., 16mo. 75 cents.

Bellevue and Charity Hospital Reports. 1 vol., 8vo. Cloth, $4.00.

Bennet's Winter and Spring on the Mediterranean. 1 vol., 12mo. Cloth, $3.50.

Davis's (Henry G.) Conservative Surgery. Cloth, $3.00.

Elliot's Obstetric Clinic. 1 vol., 8vo. Cloth, $4.50.

Flint's Physiology. (Vol. 4 in press.) 8vo. Cloth, per vol., $4.50.

Huxley & Youmans's Physiology and Hygiene. 1 vol., 12mo. $2.00.

Johnston's Chemistry of Common Life. 2 vols., 12mo. Cloth, $4.00.

Letterman's Recollections of the Army of the Potomac. 1 vol., 8vo. Cloth, $2.00.

Lewes's Physiology of Common Life. 2 vols., 12mo. Cloth, $4.00.

Maudsley on the Mind. 1 vol., 8vo. Cloth, $3.50.

Meyer's Electricity. 1 vol., 8vo. Cloth, $4.50.

Niemeyer's Practical Medicine. 2 vols., 8vo. Cloth, $9.00.

Sayre's Club-foot. 1 vol., 12mo. Cloth, $1.25.

Tanquerel's Treatise on Lead Diseases. Cloth, $2.00.

Tilt's Uterine Therapeutics. 1 vol., 8vo. Cloth, $3.50.

Vogel's Diseases of Children. 1 vol., 8vo. Cloth, $4.50.

Flint's Manual on Urine. 1 vol., 12mo. Cloth, $1.00.

Van Buren on Diseases of the Rectum. 1 vol., 12mo. $1.50.

Barnes's Obstetric Operations. 1 vol., 8vo. $4.50.

Hammond's Physics and Physiology of Spiritualism. 1 vol., 12mo. $1.00.

Neftel on Galvano-Therapeutics. 1 vol., 12mo. $1.50.

Hammond's Diseases of the Nervous System. 1 vol., 8vo $5.00.

Billroth's General Surgical Pathology and Therapeutics. 1 vol., 8vo. Cloth, $5.00.

Maudsley's Body and Mind. 12mo. Cloth, $1.00.

Stroud's Physical Cause of the Death of Christ. 1 vol., 12mo. $2.00.

Peaslee on Ovarian Tumors.

Neumann on Skin Diseases.

Combe on the Management of Infancy. 1 vol., 12mo. $1.50.

Sir J. Y. Simpson's Complete Works. Vol. I. $5.00. (Vols. II. & III. in press.)

Barker on Puerperal Diseases.

Howe on Emergencies.

Markoe on Diseases of the Bones.

⁂ Any of these works will be mailed, post free, to any part of the United States, on receipt of the price. Catalogues forwarded on application.

D. APPLETON & CO.,
549 & 551 Broadway, New York.

THE

JOURNAL OF PSYCHOLOGICAL MEDICINE,

A QUARTERLY REVIEW

OF

DISEASES OF THE NERVOUS SYSTEM,
MEDICAL JURISPRUDENCE,
AND ANTHROPOLOGY.

EDITED BY

WILLIAM A. HAMMOND, M. D.,

Professor of Diseases of the Mind and Nervous System in the Bellevue Hospital Medical College; Physician-in-Chief to the New York State Hospital for Diseases of the Nervous System, etc., etc.

Each Number contains not less than 208 pages, making one large Volume annually.

THE VOLUME BEGINS WITH THE JANUARY NUMBER.

Every Physician and Lawyer should read it.

This Journal is not designed for medical readers only, but for lawyers and literary men generally. We have the honor to have now on our subscription-books the name of nearly every Superintendent of an institution for the treatment of mental diseases, besides a great many prominent District Attorneys. In fact, to this class, whose especial duty it should be to study mental aberrations and idiosyncrasies, the PSYCHOLOGICAL JOURNAL is invaluable.

By a change of type, the publishers have been enabled to add almost one-half the former amount of matter to each number, without advancing the subscription price.

NOTICES OF THE PRESS.

"Contains able essays on medical questions of importance and general interest. Under the management of Dr. William A. Hammond, this periodical has taken very high rank among medical journals."—*N. Y. Times.*

"We looked with great expectations upon the project of this journal at its first announcement, because we were pretty well acquainted with the qualities of the gentleman who assumed to stand as the conductor of the large enterprise. . . . We will add that it has, from its first number, been printed superbly in all particulars; that it has been enlarged, and is now the most elegantly-printed quarterly in America."—*National Intelligencer.*

"A Quarterly that does honor to the professions to whom it is chiefly addressed."—*New York World.*

TERMS, invariably in advance:

Yearly Subscription	$5 00
Specimen numbers by mail	1 00

N201 Simpson, J.Y. 3777
S61 Clinical lectures on the
1872 diseases of women.

NAME	DATE DUE